

**Before the  
FEDERAL COMMUNICATIONS COMMISSION  
Washington, D.C. 20554**

In the Matter of	)	
	)	
Implementation of Section 6002(b) of the	)	
Omnibus Budget Reconciliation Act of 1993	)	
	)	WT Docket No. 13-135
Annual Report and Analysis of Competitive	)	
Market Conditions With Respect to Mobile	)	
Wireless, including Commercial Mobile	)	
Services	)	

**COMMENTS OF VERIZON**

Kathleen Grillo  
*Of Counsel*

John T. Scott, III  
Catherine M. Hilke

VERIZON  
1300 I Street, NW  
Suite 400 West  
Washington, DC 20005  
(202) 515-2412

*Attorneys for Verizon*

June 29, 2015

## TABLE OF CONTENTS

I.	INTRODUCTION AND SUMMARY .....	1
II.	CONSUMERS ARE BENEFITING FROM A ROBUSTLY COMPETITIVE WIRELESS MARKET. ....	5
A.	Competition Is Intense Across Pricing, Plan Offerings, Network Quality, and Other Factors. ....	6
1.	Voice and Data Prices Continue to Fall. ....	7
2.	Consumers Can Choose Among Diverse and Competitive Pricing Options. ....	10
3.	Carriers Also Compete on Non-Price Factors. ....	13
B.	Competition from MVNOs and Non-Traditional Sources Is Increasing. ....	18
1.	Diverse Facilities-Based Operators and MVNOs Offer Consumers Multiple Choices. ....	19
2.	Newer Providers Are Intensifying Competition. ....	22
C.	The U.S. Market Leads the World in LTE Investment. ....	25
D.	The Competitive Marketplace Is Driving Rising Consumer Satisfaction. ....	28
1.	Surveys Consistently Report High Numbers of Satisfied Customers. ....	28
2.	Consumer Complaints Are Minimal. ....	30
3.	There are No Barriers To Prevent Customers from Switching. ....	31
III.	THERE IS VIGOROUS COMPETITION FOR SPECTRUM IN BOTH THE PRIMARY AND SECONDARY SPECTRUM MARKETS. ....	34
A.	FCC Auctions Have Benefited All Competitors. ....	34
B.	An Active Secondary Market Is Enabling Carriers To Obtain Spectrum. ....	38
C.	Unlicensed Spectrum Helps Meet Consumers' Increasing Demand for Data and Drives Additional Competition. ....	39
D.	More Spectrum Is Needed. ....	41
IV.	THE NEXT COMPETITION REPORT SHOULD CORRECT THE FLAWS IN THE PREVIOUS REPORT. ....	42
A.	The <i>Seventeenth Report</i> Failed To Make the Requisite Effective Competition Finding. ....	42
B.	The <i>Seventeenth Report</i> Relied on Market Structure Rather than Market Behavior. ....	44

C.	The <i>Seventeenth Report</i> Did Not Acknowledge the Competitive Impact of MVNOs.....	46
D.	The <i>Seventeenth Report</i> 's Spectrum Analysis Is Flawed. ....	49
E.	The <i>Seventeenth Report</i> Incorrectly Used Profitability to Measure Competition.....	50
CONCLUSION.....		52

**Before the  
FEDERAL COMMUNICATIONS COMMISSION  
Washington, D.C. 20554**

In the Matter of	)	
	)	
Implementation of Section 6002(b) of the	)	WT Docket No. 13-135
Omnibus Budget Reconciliation Act of 1993	)	
	)	
Annual Report and Analysis of Competitive	)	
Market Conditions With Respect to Mobile	)	
Wireless, including Commercial Mobile	)	
Services	)	

**COMMENTS OF VERIZON**

Verizon<sup>1</sup> submits these initial comments in response to the Commission's *Public Notice* seeking input and data on mobile wireless competition for the Eighteenth Annual Report on the State of Competition in Mobile Wireless ("*Eighteenth Report*").<sup>2</sup>

**I. INTRODUCTION AND SUMMARY**

Consumers are at the center of a hotly competitive, vibrant and innovative mobile market. Data across a broad range of measures show decreasing prices, increasing output, more choices for consumers, enormous investment, and boundless innovation. Americans enjoy the most advanced mobile wireless services, the highest 4G penetration rates, and some of the fastest services available in the entire world. The reason is that the United States has the world's most vigorously competitive and innovative mobile market, as demonstrated across virtually every

---

<sup>1</sup> In addition to Verizon Wireless, the Verizon companies participating in this filing are the regulated, wholly-owned subsidiaries of Verizon Communications Inc. (collectively "Verizon").

<sup>2</sup> *Wireless Telecommunications Bureau Seeks Comment on the State of Mobile Wireless Competition*, Public Notice, WT Docket No. 15-125, DA 15-647 (WTB May 29, 2015) ("*Public Notice*").

metric:

- ***Falling prices.*** Overall, the wireless Consumer Price Index (“CPI”) continued to fall in 2014, down 5.1 percent, even as the U.S. CPI for all items held steady.<sup>3</sup> Since 2005, wireless CPI has *fallen* more than 15 percent, while the CPI for all items has *increased* more than 21 percent.<sup>4</sup> Data prices declined even more sharply.<sup>5</sup>
- ***Exploding demand.*** Usage continues to rise: annual data traffic rose 26 percent, from 3.23 trillion MBs in 2013 to 4.06 trillion MBs in 2014,<sup>6</sup> demonstrating that consumers are finding growing value in the thousands of wireless products and services that the market is making available to them.
- ***Massive investment.*** U.S. providers invested more than \$32 billion in their networks in 2014, and cumulatively have invested over \$430 billion since 1985.<sup>7</sup> Through the virtuous cycle of competition driving more investment, and investment in turn driving more competition, connection speeds in the U.S. average 2.6 Mbps, well ahead of the global average of 1.68 Mbps.<sup>8</sup> And 44 percent of North American mobile connections are LTE – nearly triple the rate of Western Europe and nearly four times that of the Asian/Pacific region.<sup>9</sup>

---

<sup>3</sup> See *infra* Chart “CPI v. Wireless CPI” (citing CONSUMER PRICE INDEX – APRIL 2015, BUREAU OF LABOR STAT., U.S. DEPT. OF LABOR USDL-15-0972, 16 tbl. 2 (Apr. 2015); U.S. Dept. of Labor, Bureau of Labor Stat.) (“April 2015 CPI”).

<sup>4</sup> See *id.*

<sup>5</sup> CHETAN SHARMA CONSULTING, US MOBILE MARKET UPDATE - Q1 2015 (May 18, 2015), <http://www.chetansharma.com/usmarketupdateq12015.htm> (last visited June 24, 2015) (“CHETAN SHARMA MOBILE MARKET UPDATE”) (noting that data prices “plummeted” 77 percent in 2014).

<sup>6</sup> CTIA, ANNUAL YEAR-END 2014 TOP-LINE SURVEY RESULTS (“CTIA 2014 SURVEY RESULTS”), [http://www.ctia.org/docs/default-source/Facts-Stats/ctia\\_survey\\_ye\\_2014\\_graphics.pdf?sfvrsn=2](http://www.ctia.org/docs/default-source/Facts-Stats/ctia_survey_ye_2014_graphics.pdf?sfvrsn=2) (last visited June 24, 2015).

<sup>7</sup> See *id.* at 11.

<sup>8</sup> CISCO, VNI MOBILE FORECAST HIGHLIGHTS, 2014-2019, [http://www.cisco.com/assets/sol/sp/vni/forecast\\_highlights\\_mobile/index.html#~Region](http://www.cisco.com/assets/sol/sp/vni/forecast_highlights_mobile/index.html#~Region) (last visited June 24, 2015) (showing “Accelerating Network Speeds” of 2 Mbps for both Western Europe and the Asia Pacific regions, and lower in all other regions) (“VNI MOBILE FORECAST HIGHLIGHTS”).

<sup>9</sup> 4G AMERICAS, MOBILE TECHNOLOGY STATISTICS – GLOBAL , Regional LTE Technology – Share of Market (March 2015), <http://www.4gamericas.org/en/resources/statistics/statistics-global/> (last visited June 24, 2015) (“4G AMERICAS STATISTICS”).

- **Consumer choice.** As of 2014, 99.7 percent of the U.S. population lives in areas with mobile broadband coverage, and 93.4 percent can choose from three or more mobile broadband providers.<sup>10</sup> 99.9 percent of the population lives in areas with mobile wireless coverage, and 96.8 percent can choose from three or more providers.<sup>11</sup> Consumers are also meeting their needs by using a growing number of over-the-top services and accessing millions of WiFi hotspots.
- **Consumer satisfaction.** The result of this competition: overwhelmingly satisfied consumers. A recent survey found that 94 percent were satisfied with their service.<sup>12</sup>

The facts are clear and consistent: U.S. consumers are benefiting from a dynamic, chaotic, innovative wireless marketplace that is connecting everything and everyone in new ways and giving consumers more choices to meet their communications needs than ever before. There is consensus across industry analysts that mobile competition is robust:

- “2014 was a significant and ultracompetitive year to the benefit of many wireless customers. Whether subscribers were switching carriers, staying put and enjoying extra data allotments or getting a free Wi-Fi router, for the most part, savings and value abounded.”<sup>13</sup>
- The mobile market presents a “trifecta of fast broadband networks, well-designed mobile computing devices, and the insatiable supply of content, applications, and services [that] has unleashed consumer demand like never before.”<sup>14</sup>

---

<sup>10</sup> *Annual Report and Analysis of Competitive Market Conditions With Respect to Mobile Wireless, Including Commercial Mobile Services*, Seventeenth Report, 29 FCC Rcd 15311, 15336 cht. III.A.2 (“*Seventeenth Report*”).

<sup>11</sup> *Seventeenth Report*, 29 FCC Rcd at 15334 cht. III.A.1.

<sup>12</sup> McLaughlin & Associates and Penn Schoen Berland, 2014 National Consumer Survey, <http://www.mywireless.org/media-center/data-center/2014-national-consumer-survey/> (last visited June 24, 2015) (“2014 National Consumer Survey”).

<sup>13</sup> William Ho, *Ho’s Perspective: Sprint, T-Mobile will keep sparking pricing moves in 2015*, FIERCE WIRELESS (Feb. 25, 2015), <http://www.fiercewireless.com/story/hos-perspective-sprint-t-mobile-will-keep-sparking-pricing-moves-2015/2015-02-25> (last visited June 24, 2015).

<sup>14</sup> CHETAN SHARMA, *CONNECTED INTELLIGENCE ERA: THE GOLDEN AGE OF MOBILE 6* (2014), ), [http://www.mobilefutureforward.com/Connected\\_Intelligence\\_Era\\_Chetan\\_Sharma\\_Consulting.pdf](http://www.mobilefutureforward.com/Connected_Intelligence_Era_Chetan_Sharma_Consulting.pdf) (last visited June 24, 2015).

- “Wireless network operators are under increasing pressure to provide more capacity, coverage and quality without increasing end user price.”<sup>15</sup>

Competitors vying to win consumers extend beyond facilities-based mobile providers to include a vast array of mobile virtual network operators (“MVNOs”), Wi-Fi-based providers, and a growing collection of over-the-top VoIP, video-chat, messaging, and social media apps.

MVNO TracFone ranks fifth among *all* providers of mobile service.<sup>16</sup> Cable providers will be operating 20 million Wi-Fi hotspots nationwide by the end of 2015, and 50 million by the end of 2017.<sup>17</sup> And newer entrants are providing even further choices for consumers. Google’s Project Fi, for example, will offer a smartphone with access to unlimited voice, text, and data service that largely runs on Wi-Fi.<sup>18</sup>

The market for spectrum, an essential input for the growth of mobile services, is also intensely competitive, with new spectrum resources being acquired by numerous companies through both auctions and secondary market transactions. More than half of the spectrum the Commission has auctioned since it adopted the National Broadband Plan was bought by DISH,

---

<sup>15</sup> Morgan Kurk, *The Key to Success in 2015*, Commscope Blog, <http://www.commscope.com/Blog/The-Key-to-Success-in-2015/> (last visited June 24, 2015) (“Kurk Key to Success”).

<sup>16</sup> See JackDaw Research, *Analysis of Q2 2014 US Wireless Market* (2014), <http://www.beyonddevic.es/2014/08/12/analysis-of-q2-2014-us-wireless-market/> (last visited June 24, 2015) (“Tracfone is the fifth-largest provider [in the U.S. Market]... It’s also the largest prepaid provider in the U.S. by some margin.”) (“JackDaw Analysis”).

<sup>17</sup> See Tammy Parker, *Report: U.S. cable operators closing in on 10M hotspots*, FIERCE WIRELESS (Sept. 24, 2014), <http://www.fiercewireless.com/tech/story/report-us-cable-operators-closing-10m-hotspots/2014-09-24> (last visited June 24, 2015) (“U.S. cable operators closing in on 10M hotspots”).

<sup>18</sup> See Chris Welch, *Price Comparison: Google’s Project Fi versus Verizon, AT&T, Sprint and T-Mobile*, THE VERGE (Apr. 22, 2015), <http://www.theverge.com/2015/4/22/8469571/google-fi-pricing-verizon-att-sprint-tmobile> (last visited June 24, 2015) (“Price Comparison: Google’s Project Fi versus Verizon, AT&T, Sprint and T-Mobile”).

not by one of the existing national carriers. DISH, T-Mobile and Sprint have substantial absolute amounts of spectrum as well as far more spectrum resources per customer than do AT&T and Verizon, demonstrating that there is no lack of access to spectrum. And competitors are using unlicensed spectrum to offer multiple new products and services—a trend that is likely to accelerate as the Commission unleashes more unlicensed spectrum. Commission data on spectrum transfers illustrate an equally vibrant secondary market, with carriers frequently trading their spectrum resources, optimizing the value of what they hold, and tailoring it to the way each chooses to differentiate their business in order to compete for customers.

Notwithstanding the intense competition providers face – not only from one another, but from numerous other entities in the mobile wireless ecosystem – in recent years the Commission has not found that the nation’s mobile wireless market is effectively competitive. The Commission should correct course in the *Eighteenth Report*, because the facts lead to only one defensible conclusion. The Commission should recognize, along with the market’s participants and other observers, that the mobile services market is not only effectively but intensely competitive.

## **II. CONSUMERS ARE BENEFITING FROM A ROBUSTLY COMPETITIVE WIRELESS MARKET.**

The U.S. wireless industry continues to be a competitive buyers’ market. Consumers enjoy declining prices,<sup>19</sup> new plan and pricing models,<sup>20</sup> and access to new entrants enabled

---

<sup>19</sup> Simon Flannery *et al.*, MORGAN STANLEY RESEARCH, TELECOM SERVICES, CHART OF THE WEEK: ARPUS – A DOWNHILL RACE (Feb. 9, 2015) (“MORGAN STANLEY ARPUS RESEARCH”); April 2015 CPI, 16 tbl. 2.

<sup>20</sup> See, e.g., S-Q3 2014 Sprint Corp. Earnings Call (edited transcript), Thompson Reuters Streetviews (Feb. 5, 2015); Press Release, *Sprint Prepaid Monthly Rolling Data Now Included* (continued on next page)



through new technology, such as Wi-Fi-only services and over-the-top apps, which analysts expect will further bolster the strong trend of consumer choice.<sup>21</sup> This dynamic and competitive market, coupled with unprecedented demand for data<sup>22</sup> and coverage, is driving massive network investments and innovation,<sup>23</sup> resulting in high consumer satisfaction.<sup>24</sup> At the same time, aggressive contract buy-out campaigns make changing companies easier than ever before. These metrics confirm that U.S. consumers benefit from the most progressive and competitive wireless market in the world.

**A. Competition Is Intense Across Pricing, Plan Offerings, Network Quality, and Other Factors.**

Competition among providers is leading to better quality of service and higher value for consumers, even as prices continue to drop. Investments in network performance, coverage, customer care, and new plan options are enhancing customer welfare. Competitive buy-out

---

*on All Plans Starting at \$35/Month, Available Exclusively at Best Buy* (June 2, 2015), <http://newsroom.sprint.com/news-releases/sprint-prepaid-monthly-rolling-data-now-included-on-all-plans-starting-at-35month-available-exclusively-at-best-buy.htm> (last visited June 24, 2015); T-Mobile, “One Plan for all. Simple.”, [http://www.t-mobile.com/simple-choice-international-plans.html?cmpid=WMM\\_PR\\_Q115UNCNTR\\_29KUUUY4ZP8409#uncontract](http://www.t-mobile.com/simple-choice-international-plans.html?cmpid=WMM_PR_Q115UNCNTR_29KUUUY4ZP8409#uncontract) (last visited June 29, 2015).

<sup>21</sup> Steve Kovach, *Google’s new cellphone service has the best data plan anyone has ever offered*, BUSINESS INSIDER (Apr. 22, 2015), <http://www.businessinsider.com/google-project-fi-pricing-2015-4> (last visited June 24, 2015).

<sup>22</sup> *Average Monthly Mobile Data Consumed to Reach 2,289 Megabytes by 2019, Says ABI Research*, BUSINESS WIRE (Jan. 28, 2015), [http://www.businesswire.com/news/home/20150128005900/en/Average-Monthly-Mobile-Data-Consumed-Reach-2289#.VXG7X00w\\_ct](http://www.businesswire.com/news/home/20150128005900/en/Average-Monthly-Mobile-Data-Consumed-Reach-2289#.VXG7X00w_ct) (last visited June 24, 2015).

<sup>23</sup> See, e.g., CTIA Research, *More than 68K Wireless-Related Patents Approved in 3.5 Years* (2014), <http://www.ctia.org/resource-library/facts-and-infographics/archive/68k-wireless-patents-3.5-years> (last visited June 24, 2015).

<sup>24</sup> See 2014 National Consumer Survey.

programs provide consumers with the financial incentive to switch carriers, resulting in high consumer satisfaction.<sup>25</sup> Taken together, falling prices, increased plan options, easier carrier switching, and increasing quality of wireless service demonstrate a competitive market.<sup>26</sup>

### **1. Voice and Data Prices Continue to Fall.**

Consumers continue to benefit from decreases in wireless pricing, while overall usage continues to increase. Looking forward, analysts believe pricing will continue to decline<sup>27</sup> as providers continue to differentiate themselves through new pricing models<sup>28</sup> and non-price rivalry<sup>29</sup> in an increasingly competitive market. With data use climbing rapidly, consumers are capturing even greater value for each dollar spent on wireless services.

Two key pricing indicators relied on by the Commission in prior competition reports<sup>30</sup> – the Wireless Telephone Services component of the Consumer Price Index (“wireless CPI”) and Average Revenue Per Unit (“ARPU”) – show that mobile wireless prices declined in 2014. Data pricing in particular is falling precipitously.

---

<sup>25</sup> Philip Cusick, Eric Pan, Richard Choe & Ava Zhang, J.P. MORGAN NORTH AMERICAN EQUITY RESEARCH, 4Q14 WIRELESS SCORECARD (Feb. 9, 2015) (“J.P. Morgan Wireless Scorecard”); *Investor Factbook*, T-Mobile US Reports First Quarter 2015 Results (2015); Sprint, The Sprint Quarterly Investor Update – Fiscal 4Q14 3 (May 5, 2015), <http://investors.sprint.com/Cache/1500071434.PDF> (last visited June 24, 2015).

<sup>26</sup> Investopedia, CFA Level 1, Microeconomics-Monopolistic Competition, <http://www.investopedia.com/exam-guide/cfa-level-1/microeconomics/monopolistic-competition.asp> (last visited June 24, 2015)

<sup>27</sup> See Jeff Kagan, *Wireless Trends for 2015*, EQUITIES.COM (2014), <http://www.equities.com/editors-desk/stocks/telecommunication/five-wireless-trends-for-2015> (last visited June 24, 2015); see also Kurk Key to Success; see also MORGAN STANLEY ARPUS RESEARCH.

<sup>28</sup> See *Seventeenth Report*, 29 FCC Rcd at 15375-82 ¶¶ 126-43.

<sup>29</sup> See *id.*, at 15393 ¶ 168.

<sup>30</sup> See *id.*, at 15328-31 ¶¶ 36, 40-41.

The wireless CPI declined 5.1 percent in just the last year alone, from April 2014 to April 2015,<sup>31</sup> even as the general CPI for all goods stayed essentially the same (down 0.04 percent).<sup>32</sup> Over the past decade, wireless CPI has fallen more than 15 percent.<sup>33</sup> By comparison, the general CPI *increased* more than 21 percent over the same 2005-2015 period.<sup>34</sup> These trends are depicted in the chart below:

Overall CPI change over the last decade contrasted with the isolated wireless telephony component CPI over the same timeframe.<sup>35</sup>

ARPU shows similar declines. According to the Commission, the ARPU metric “has

---

<sup>31</sup> April 2015 CPI, 16 tbl. 2.

<sup>32</sup> *See infra* Chart “CPI v. Wireless CPI.”

<sup>33</sup> *See id.*

<sup>34</sup> *See id.*

<sup>35</sup> *See* April 2015 CPI.

commonly been used in the industry as an overall pricing indicator” and “remains the best such measure currently used by industry and financial analysts.”<sup>36</sup> For 2014, the monthly service ARPU figure was \$46.64, down 4.4 percent from 2013.<sup>37</sup> And over the last decade (2004-2014), ARPU has declined more than 11 percent.<sup>38</sup>

The Commission’s last report noted that new pricing structures have “effectively reduced the price of postpaid service plans by increasing monthly data allowances on usage-based data plans without increasing monthly service fees.”<sup>39</sup> Those trends have continued, driving even more value for every dollar a consumer spends. Meanwhile, carriers are offering an even more robust slate of prepaid options, family and shared plans, no-contract plans, tiered plans, and plans that separate the handset from the service, further tailoring the marketplace to meet consumers’ needs.

Data prices show even more dramatic declines. One analyst reports that from 2010 to 2013, data pricing year-over-year declined by single digits,<sup>40</sup> but in 2014 alone data pricing “has plummeted” by 77 percent.<sup>41</sup> At the same time, overall mobile usage is rising – in some cases significantly. For example, the total megabytes (“MBs”) of data traffic rose 26 percent from 3.23 trillion in 2013 to 4.06 trillion in 2014.<sup>42</sup> While total Minutes of Use (“MOUs”) fell slightly

---

<sup>36</sup> *Seventeenth Report*, 29 FCC Rcd at 15328 ¶ 36.

<sup>37</sup> CTIA 2014 SURVEY RESULTS at 9.

<sup>38</sup> *See id.*

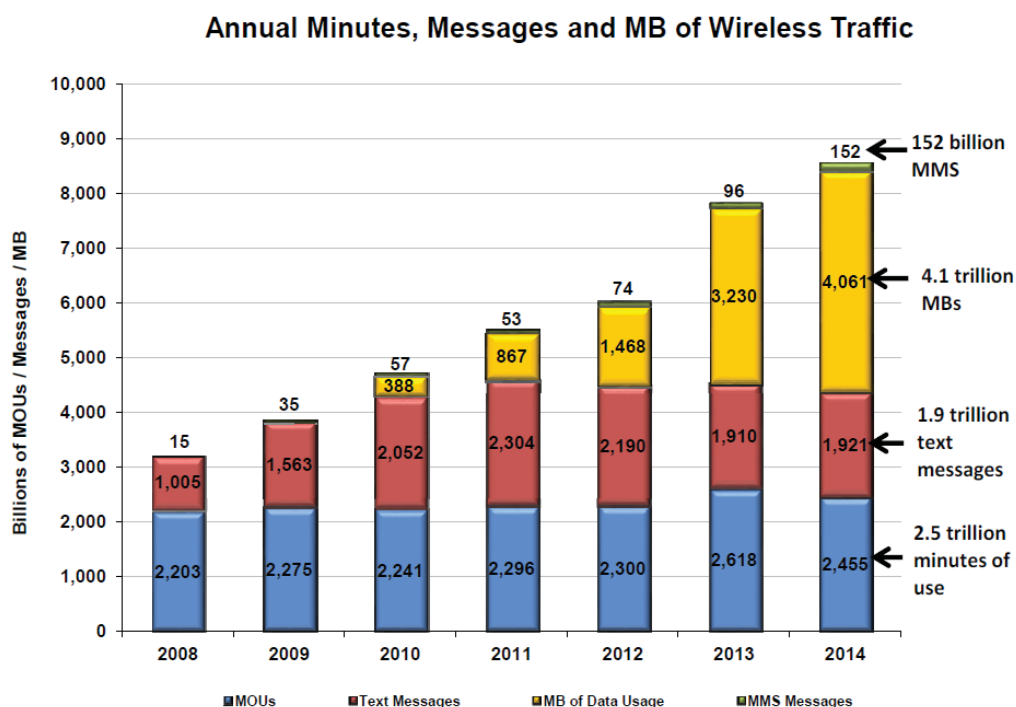
<sup>39</sup> *See Seventeenth Report*, 29 FCC Rcd at 15377 ¶ 135.

<sup>40</sup> Chetan Sharma Mobile Market Update.

<sup>41</sup> *Id.*

<sup>42</sup> CTIA 2014 SURVEY RESULTS.

from 2.618 trillion in 2013 to 2.455 trillion in 2014, Multimedia Messaging Service (“MMS”) traffic was up 58.1 percent for the year (from 96.1 billion MMS messages sent in 2013 to 152 billion messages in 2014), and total SMS messages increased 0.6 percent (from 1.91 trillion in 2013 to 1.92 trillion in 2014). This increasing usage is depicted in the following chart:



Source: CTIA 2014 SURVEY RESULTS

Together, these trends reinforce the ever-increasing value consumers are receiving for their wireless dollars: prices are declining while the services consumers enjoy are increasing.

## 2. Consumers Can Choose Among Diverse and Competitive Pricing Options.

Providers are also fiercely competing for consumers by offering an increasingly diverse array of innovative pricing plans and options. These range from the traditional postpaid pricing model both with and without subsidized devices and Early Termination Fees (“ETFs”), family

and shared plans (typically a postpaid offering), month-to-month postpaid plans, and prepaid pricing plans, as well as options where the rate plan is separated from the sale of the handset.<sup>43</sup>

Plans also vary based on a wide variety of factors, such as voice, messaging, data, Wi-Fi and hotspot connections, international calling, and unlimited vs. tiered rates. Consequently, consumers can select the competitive pricing options which best suit their individual needs. A wide variety of resources also is available to consumers to help them determine which services and pricing plans are best for them.<sup>44</sup>

The *Seventeenth Report* correctly noted both the recent “significant increase in new service plans that employ a different, ‘no-contract’ postpaid model,”<sup>45</sup> and the “rise of the equipment installment plan.”<sup>46</sup> New competitive offerings have become even more frequent and aggressive, again underscoring intense competition for consumers. For example:

- T-Mobile continues to drive its postpaid subscriber base with aggressively priced “Simple Choice” promotions, which helped it capture 1.1 million branded postpaid

---

<sup>43</sup> See, e.g., AT&T, “BYOP”, <http://www.att.com/shop/wireless/byop.html?WT.srch=1> (last visited June 29, 2015); T-Mobile, “Bring your own phone,” <http://www.t-mobile.com/bring-your-own-phone.html> (last visited June 29, 2015); Straight Talk Wireless, “Bring Your Phone and Get 5 GB of High Speed Data,” <http://www.straighttalkbyop.com/> (last visited June 29, 2015); TracFone, “Now you can bring your 4G LTE smartphone to TracFone,” <http://tracfonewireless.com/byop/> (last visited June 29, 2015).

<sup>44</sup> See, e.g., ConsumerReports.org, <http://www.consumerreports.org> (last visited June 18, 2015); J.D. Power, <http://www.jdpower.com> (last visited June 24, 2015); Wirefly, <http://www.wirefly.com/content/phone-plans> (last visited June 24, 2015); Deadcellzones.com, <http://www.deadcellzones.com/> (last visited June 24, 2015); MyRatePlan!, <http://www.myrateplan.com/> (last visited June 24, 2015); whistleOut, <http://www.whistleout.com/CellPhones> (last visited June 24, 2015).

<sup>45</sup> *Seventeenth Report*, 29 FCC Rcd at 15375 ¶ 126.

<sup>46</sup> *Id.* at 15376 ¶ 128.

net additions in the first quarter of 2015, far more than any other carrier.<sup>47</sup>

- Sprint has reported that its dramatic “Cut Your Bill in Half” promotion, launched late last year, has been a success in luring customers away from AT&T and Verizon. The plan allows AT&T and Verizon customers to come to Sprint at a rate half the price they currently pay when they trade in their old device and sign up for Sprint.<sup>48</sup>
- Verizon announced in February that it was cutting prices on most options for its “More Everything” shared data plans, including many by \$10 per month. Verizon also added higher-usage data buckets to its offerings.<sup>49</sup>
- AT&T recently announced a new program called “Data Perks,” which gives free broadband to post-paid subscribers who view ads, download apps, and make purchases from partnered brands.<sup>50</sup>

Novel prepaid offerings are also proliferating, providing new alternatives for subscribers.

RingPlus, for example, has announced a pricing plan where customers can hear an ad play while

---

<sup>47</sup> T-Mobile, Investor Factbook Q1 2015, <http://investor.t-mobile.com/Cache/1001197521.PDF?Y=&O=PDF&D=&fid=1001197521&T=&iid=4091145> (last visited June 29, 2015).

<sup>48</sup> S-Q3 2014 Sprint Corp. Earnings Call (edited transcript), Thompson Reuters Streetviews (Feb. 5, 2015).

<sup>49</sup> See Tammy Parker, *Verizon Wireless Can’t Avoid the Price War, Offers Bigger Data Buckets on MORE Everything Plans*, CURRENT ANALYSIS (Feb. 5, 2015), [http://www.currentanalysis.com/Compete/Login.aspx?ReturnUrl=%2fCOMPETE%2fFrontEnd%2fR\\_94241.aspx](http://www.currentanalysis.com/Compete/Login.aspx?ReturnUrl=%2fCOMPETE%2fFrontEnd%2fR_94241.aspx) (last visited June 29, 2015); Phil Goldstein, *Verizon cuts prices on most of its more everything shared data plans, adds new options*, FIERCE WIRELESS (Feb. 4, 2015), <http://www.fiercewireless.com/story/verizon-cuts-prices-most-its-more-everything-shared-data-plans-adds-new-opt/2015-02-04> (last visited June 24, 2015); Jon Brodtkin, *Verizon Wireless feeling heat of competition, cuts data prices*, ARSTECHNICA (Feb. 5, 2015), <http://arstechnica.com/business/2015/02/verizon-wireless-feeling-heat-of-competition-cuts-data-prices/> (last visited June 24, 2015).

<sup>50</sup> Mark Sullivan, *AT&T to give free broadband to subscribers who interact with brands*, VB NEWS (June 10, 2015), <http://venturebeat.com/2015/06/10/att-to-give-free-broadband-to-subscribers-who-interact-with-brands/> (last visited June 29, 2015).

their call is being connected in exchange for full content sponsored plans or reduced costs.<sup>51</sup> The four national carriers have also expanded their prepaid lineups. And numerous new MVNOs, including Boss Cellular, FMP Communications, and Sunshyne Wireless, are expected to begin offering services this year.<sup>52</sup>

### **3. Carriers Also Compete on Non-Price Factors.**

While carriers are competing aggressively on pricing and plan options, the Commission has rightly recognized that mobile wireless service providers “compete for customers on dimensions other than price,”<sup>53</sup> including network coverage and quality. As described below, these vectors are also marked by robust competition aimed at improving consumers’ experience.

#### **a. Competition in Network Quality Metrics Drives Significant Carrier Investment.**

Consumers consistently rank network performance and coverage as key variables in choosing a service provider. The *Seventeenth Report* appropriately acknowledged carriers’ significant capital expenditures aimed at enhancing network performance and coverage, and that “[n]etwork investment remains a centerpiece of service providers’ efforts to improve their customers’ mobile wireless service experience.”<sup>54</sup> Wireless carrier advertising campaigns also tout providers’ coverage, reliability, and the speed of their respective networks.

Wireless providers have collectively spent hundreds of billions of dollars improving and

---

<sup>51</sup> RingPlus Announcements, “New Pricing Plans Starting Saturday June 13th @ 3pm PST,” <https://discourse.ringplus.net/t/new-pricing-plans-starting-saturday-june-13th-2pm-pst/3741> (last visited June 29, 2015).

<sup>52</sup> BestMVNO, *New MVNOs Debuting in 2015* (Dec. 31, 2014), <http://bestmvno.com/new-mvnos-debuting-2015/> (last visited June 29, 2015).

<sup>53</sup> *Seventeenth Report*, 29 FCC Rcd at 15393 ¶ 168.

<sup>54</sup> *See id.* at 15400 ¶ 187.



expanding their networks to compete for customers – \$32 billion in 2014 alone and a total of more than \$430 billion in cumulative capital investment since 1985.<sup>55</sup> And U.S. carriers are expected to spend \$159.3 billion on wireless network infrastructure by 2017, up a significant 40 percent from the \$113.9 billion that they spent in the previous four years.<sup>56</sup>

These continued massive infrastructure investments reflect growing competition among carriers to offer subscribers state of the art networks to accommodate their exploding demand for streaming and other broadband services. In 2014 alone, data-intensive mobile app usage grew by 76 percent,<sup>57</sup> and video accounted for 45 percent of mobile data traffic (projected to increase to 60 percent by 2020).<sup>58</sup> And in five years, investments in wireless infrastructure are expected to support a wireless market that is 90 percent LTE, more than double the LTE penetration in 2014.<sup>59</sup> This staggering level of investment is driven by competition, and consumers are the beneficiaries. In turn, these investments are driving growth in downstream markets, devices, infrastructure, and other segments. As one wireless analyst aptly noted, “[t]he clear winner in this capital expenditure race is obvious: The American customer, who will get better, faster,

---

<sup>55</sup> See CTIA 2014 SURVEY RESULTS at 11.

<sup>56</sup> Telecommunications Industry Association, ANNUAL MARKET REVIEW & FORECAST (June 24, 2014), <http://www.tiaonline.org/news-media/press-releases/driven-big-data-telecom-spending-grows-faster-us-internationally-first>.

<sup>57</sup> Simon Khalaf, *Shopping, Productivity and Messaging Give Mobile Another Stunning Growth Year*, FLURRY INSIGHTS (Jan. 6, 2015), <http://flurrymobile.tumblr.com/post/115194992530/shopping-productivity-and-messaging-give-mobile>.

<sup>58</sup> Ericsson, ERICSSON MOBILITY REPORT: ON THE PULSE OF THE NETWORKED SOCIETY 14-15 (June 2015), <http://www.ericsson.com/res/docs/2015/ericsson-mobility-report-june-2015.pdf> (“ERICSSON MOBILITY REPORT”).

<sup>59</sup> *Id.* at 9.

more powerful wireless services in more places.”<sup>60</sup>

**b. Rival Providers Compete To Retain Customers.**

Customer information and customer care are further differentiating elements of carrier competition. A study on mobile customer satisfaction found that “[g]etting right any kind of care interaction is critical. A customer who rates the performance of customer care as ‘excellent’ is over three times more likely to be secured beyond 12 months than someone who rates the experience as ‘poor.’”<sup>61</sup> Carriers have every incentive to inform and serve their customers – and are doing so – in order to compete successfully.

***Carrier-Provided Information.*** Wireless carriers covering almost 97 percent of consumers have voluntarily adopted CTIA’s “Consumer Code for Wireless Service.”<sup>62</sup> Under the Code, participating carriers give consumers information they need to help them to make informed choices, and to ensure they have information regarding their wireless service plans and coverage maps.<sup>63</sup> The Code covers voice, messaging, and data services for both prepaid and

---

<sup>60</sup> Roger Entner, *Entner: Carriers double down on network investments, but need regulator support*, FIERCEWIRELESS (Nov. 13, 2012), <http://www.fiercewireless.com/story/entner-carriers-double-down-network-investments-need-regulator-support/2012-11-13> (last visited June 29, 2015).

<sup>61</sup> Andrew Burger, *Report: 36% of Wireless Customers Considering Switch*, TELECOMPETITOR (Mar. 21, 2013) (citing the WDS MOBILE LOYALTY AUDIT 2013), <http://www.telecompetitor.com/report-36-of-wireless-customers-considering-switch/>.

<sup>62</sup> See CTIA, “Consumer Code for Wireless Service,” <http://www.ctia.org/policy-initiatives/voluntary-guidelines/consumer-code-for-wireless-service> (last visited June 29, 2015) (“CTIA Consumer Code for Wireless Service”).

<sup>63</sup> CTIA Consumer Code for Wireless Service,” at 1-2, [http://files.ctia.org/pdf/The\\_Code.pdf](http://files.ctia.org/pdf/The_Code.pdf) (“CTIA Consumer Code”). In 2004, the largest national carriers, including Verizon, also agreed to follow certain uniform nationwide consumer protection practices in conducting their businesses. This agreement, known as the Assurance of Voluntary Compliance, also helps to  
(continued on next page)

postpaid wireless customers.<sup>64</sup> Consistent with the Code, mobile wireless providers offer customers extensive plan-related information both in-store and on their websites, ranging from pricing and usage figures to detailed coverage maps.

Mobile providers are also supplying consumers with a variety of tools to monitor their accounts and their service use through their mobile devices, on the Internet, and through text alerts.<sup>65</sup> Following extensive discussions with numerous stakeholders, the Code was updated to include a commitment to provide free usage alerts to postpaid customers with limited allowances when they approach and exceed their voice, messaging, and data allowances, and to notify customers without an international roaming plan whose devices have registered abroad and who may incur charges for international usage. The FCC's website states that those commitments were met,<sup>66</sup> and now "approximately 97 percent of wireless customers across the country are

---

ensure that consumers are provided with information covering advertising, point of sale rate and term disclosures, coverage map information, cancellation and trial periods for phone usage, and customer billing formats.

<sup>64</sup> CTIA Consumer Code.

<sup>65</sup> See, e.g., Verizon, "Tools for Monitoring Usage," [http://support.verizonwireless.com/information/usage\\_tools.html](http://support.verizonwireless.com/information/usage_tools.html) (describing how to access usage via short codes) (last visited June 29, 2015) ("Verizon Monitoring Tools"); Cellcom Inc., "Frequently Asked Questions," <http://www.cellcom.com/faq.html> (explaining how users may view recent invoices, make payments and check minutes, data and messaging use through MyCellcom) (last visited June 29, 2015); SouthernLINC, <http://www.southernlinc.com/customersupport/> (discussing online account access that allows users to view their usage activity and make payments online) (last visited June 29, 2015); U.S. Cellular, "My Account," <https://customer.uscellular.com/uscellular/myaccount/login.jsp> (allowing users to "Login" and view usage, pay bills and manage service options) (last visited June 29, 2015); see also Brian Josef, *How to Manage Your Wireless Account Using Your Wireless Device*, CTIA BLOG (July 20, 2011), <http://blog.ctia.org/2011/07/20/how-to-manage-your-wireless-account-using-your-wireless-device/>.

<sup>66</sup> See FCC, "Helping Consumers Avoid Bill Shock," <http://www.fcc.gov/bill-shock-alerts> (Apr. 17, 2013).

protected.”<sup>67</sup>

Verizon offers alerts that go beyond the Code, an indication of how wireless providers seek to differentiate themselves to compete. Verizon currently provides free alerts by text message and email: (i) for data customers who have usage based data pricing or a MORE Everything® Plan, when the customer reaches 75 percent, 90 percent, and 100 percent of his/her monthly domestic allowance, and also at 90 percent of each overage allowance; and (ii) for voice and messaging customers who have usage based pricing, when the customer reaches 75 percent, 90 percent, 100 percent, and 105 percent of his/her monthly domestic allowance.<sup>68</sup>

**Customer Care.** Mobile wireless carriers also are keenly aware of the need to compete to provide the very best customer care. In a study on the importance of customer service, J.D. Power and Associates found that “[w]ithout exception, J.D. Power finds a strong relationship across industries between the level of customer satisfaction and demand-side benefits, such as repurchase intent rate.”<sup>69</sup> Verizon, for example, has invested heavily in customer service operations to meet customers’ needs, with over 1,700 company-operated stores and kiosks and 24/7 account access.<sup>70</sup> Customers also may utilize self-serve options, including on-line, handset-

---

<sup>67</sup> *Id.*

<sup>68</sup> *See* Verizon Monitoring Tools. In addition, during international travel, Verizon provides welcome text messages upon arrival, which provide important information such as standard rates for voice, data, and text messaging. For customers who use data globally, Verizon sends a text and email notification before the customer incurs a significant overage charge. *Id.*

<sup>69</sup> J.D. Power and Associates, BEYOND SATISFACTION: J.D. POWER 2012 CUSTOMER SERVICE CHAMPIONS, BRANDS THAT DELIVER SERVICE EXCELLENCE TO MAXIMIZE BUSINESS RESULTS, Executive Summary at 3 (Mar. 2012), <http://pictures.dealer.com/jdpower/12ea79a70a0d02b7014443193be6f066.pdf>.

<sup>70</sup> *See* Verizon, “About Verizon Wireless,” [http://aboutus.verizonwireless.com/company/customer\\_satisfaction/](http://aboutus.verizonwireless.com/company/customer_satisfaction/) (last visited Jun. 17, 2015); (continued on next page)

accessible, or interactive voice response call-in systems, to address their needs.<sup>71</sup>

**c. The Volume of Wireless Advertising Also Reveals the Fierce State of Competition.**

Providers engage in aggressive marketing efforts to inform consumers about their service offerings, maintain existing customers, and lure subscribers away from competitors. Wireless companies spend enormous amounts on web, print, and broadcast advertising, as is evident from any online experience, looking at any newspaper, or watching television. National wireless providers as well as many mid-sized carriers and MVNOs are major advertisers. According to Nielsen, in 2014, AT&T alone spent \$1.1 billion on ads making it the fourth highest spender among all companies across all industries.<sup>72</sup> This substantial use of advertising to reach potential as well as existing customers about the benefits of service offerings underscores the intensity of wireless companies' competitive efforts to attract and retain their customers.

**B. Competition from MVNOs and Non-Traditional Sources Is Increasing.**

The dynamic consumer experience for wireless services is supported by numerous and diverse participants across the mobile ecosystem – from existing mobile carriers and MVNOs to new entrants and emerging non-traditional sources of competition like Google's Project Fi – all striving to attract and keep customers in the face of a multitude of alternative providers. This market structure produces the competition described above, expanding consumer options and

---

*see also* Verizon, "Commitment to Customer Satisfaction FAQs," <http://www.verizonwireless.com/support/other-wireless-topics/#Customer%20Satisfaction> (last visited June 17, 2015).

<sup>71</sup> *See id.*

<sup>72</sup> Nielsen, TOPS OF 2014: ADVERTISING (Jan. 16, 2015), <http://www.nielsen.com/us/en/insights/news/2015/tops-of-2014-advertising.html>.

improving the mobile experience.

**1. Diverse Facilities-Based Operators and MVNOs Offer Consumers Multiple Choices.**

The market for mobile wireless service is populated by a wide range of providers offering services under a variety of business models. There are 160 facilities-based mobile providers<sup>73</sup> and numerous MVNOs. And alternative sources of connectivity are expanding, including the proliferation of Wi-Fi-based providers. Thus, looking at the wireless services landscape holistically, any competitive analysis of the industry would be misguided if confined solely to the traditional four nationwide carriers. Highlighted below are the roles of key provider segments.

***Nationwide Facilities-Based Providers Enhance Service Quality and Intensify Competition.*** There are four “nationwide” providers – Verizon, AT&T, Sprint, and T-Mobile – each offering facilities-based service to the vast majority of Americans. These providers vie aggressively with one another and with others, competing on price and service plans, on network coverage and next-generation capabilities, on devices and operating systems, and on customer care.

***Other Facilities-Based Providers Expand Consumer Choice.*** Many other carriers play a significant role in shaping the competitive industry and the consumer experience, and are providing 4G mobile broadband services to their customers. For example, U.S. Cellular, a leading provider in several regions across the country, expects to complete its LTE rollout across

---

<sup>73</sup> See Industry Analysis and Technology Division, FCC, LOCAL TELEPHONE COMPETITION: STATUS AS OF DECEMBER 31, 2013, at 29, Table 18 (Oct. 2014), [https://apps.fcc.gov/edocs\\_public/attachmatch/DOC-329975A1.pdf](https://apps.fcc.gov/edocs_public/attachmatch/DOC-329975A1.pdf) (“Dec. 2013 Local Competition Data”).

its footprint by the end of this year.<sup>74</sup> Two other regional providers with substantial market presence in certain parts of the country, C Spire and nTelos,<sup>75</sup> have deployed LTE within their service territories.<sup>76</sup> Competition is also driven by numerous smaller facilities-based carriers, including Bluegrass Cellular, Cellcom, and GCI Wireless, to name a few. A number of these carriers are deploying LTE across their regions and bringing the benefits of these superior networks to more customers.<sup>77</sup>

To help bring the benefits of 4G LTE services to customers in rural markets across the U.S., Verizon launched its LTE in Rural America (LRA) program. The LRA program, introduced in May 2010, now covers about 2.6 million people in areas totaling more than 100,000 square miles (larger than the state of Oregon).<sup>78</sup> Currently, 21 rural wireless carriers participate in the program. Verizon provides technical support and resources to help a rural wireless company build out its own 4G LTE network, extending the reach of LTE coverage to

---

<sup>74</sup> See Transcript, United States Cellular Corp. and Telephone and Data Systems Inc. at Citi Global Internet, Media & Telecommunications Conference, at 2 (Jan. 6, 2015).

<sup>75</sup> *Seventeenth Report*, 29 FCC Rcd at 15318 ¶ 14.

<sup>76</sup> See nTelos Wireless 4G LTE Network, <https://www.ntelos.com/shop/ntelos-wireless-4g-lte-network/> (last visited June 29, 2015); Press release, *C Spire Launches 4G LTE Mobile Broadband Services in Louisville, Mississippi* (Jan. 6, 2014), [http://www.cspire.com/company\\_info/about/news\\_detail.jsp?entryId=19100010](http://www.cspire.com/company_info/about/news_detail.jsp?entryId=19100010) (“C Spire has rolled out 4G LTE services in 51 Mississippi markets since September 2012”) (last visited June 29, 2015).

<sup>77</sup> See, e.g., Press Release, *Bluegrass Cellular Announces Completion Dates of 4G LTE Network* (Jul. 22, 2014), [http://bluegrasscellular.com/about/news/bluegrass\\_cellular\\_announces\\_completion\\_dates\\_of\\_4g\\_lte\\_networkif\\_its\\_not\\_a](http://bluegrasscellular.com/about/news/bluegrass_cellular_announces_completion_dates_of_4g_lte_networkif_its_not_a) (last visited June 29, 2015).

<sup>78</sup> Paul Macchia, *Verizon’s LTE in Rural America (LRA) Program Celebrates Five Years of Delivering Advanced Wireless Services to Rural Customers*, VERIZON NEWS CENTER (May 15, 2015), <http://www.verizonwireless.com/news/article/2015/05/verizons-lte-in-rural-america-lra-program-celebrates-five-years-of-delivering-advanced-wireless-services-to-rural-customers.html>.

rural areas throughout the country.

***MVNOs Provide Additional Competition and Innovation.*** MVNOs also play an important role in wireless competition with their ability to cater directly to niche markets and value-conscious consumers.<sup>79</sup> As the Commission has observed, MVNOs contribute to both price and non-price rivalry, “increas[ing] competition and consumer welfare by providing service to various market segments using the capacity of the hosting facilities-based provider and the marketing strategy and distribution network of the MVNO.”<sup>80</sup>

The MVNO segment has continued to grow, accounting for 12 percent of mobile wireless subscriptions according to the FCC’s most recent report.<sup>81</sup> MVNO TracFone ranks fifth among *all* providers of mobile service, facilities-based or otherwise, and is the largest prepaid provider.<sup>82</sup> MVNOs not only provide wireless services targeted to specific demographics or submarkets, but are creating new and innovative service models, including dynamic LTE/Wi-Fi switching, mobile broadband only, specialized data-only, and machine-to-machine (“M2M”) offerings, all

---

<sup>79</sup> See, e.g., G.E. Miller, *Get to Know an MVNO. It Could Save You Millions*, 20SOMETHING FINANCE (Jan. 3, 2015), <http://20somethingfinance.com/best-mvno-prepaid-plans/>.

<sup>80</sup> *Implementation of Section 6002(b) of the Omnibus Budget Reconciliation Act of 1993 Annual Report and Analysis of Competitive Market Conditions With Respect to Mobile Wireless, Including Commercial Mobile Services*, Fifteenth Report, 26 FCC Rcd 9664, 9699 ¶ 34 (2011).

<sup>81</sup> As of December 31, 2013, the resale segment comprised 12 percent of mobile telephony subscribers, up from 9 percent as of December 31, 2010. *Compare Dec. 2013 Local Telephone Competition Data* at 29, Table 18 with Industry Analysis and Technology Division, FCC, LOCAL TELEPHONE COMPETITION: STATUS AS OF DECEMBER 31, 2010 at 29, Table 18 (Oct. 2011), [https://apps.fcc.gov/edocs\\_public/attachmatch/DOC-310264A1.pdf](https://apps.fcc.gov/edocs_public/attachmatch/DOC-310264A1.pdf).

<sup>82</sup> See JackDaw Analysis (“TracFone is the fifth-largest provider [in the U.S. Market]... It’s also the largest prepaid provider in the U.S. by some margin.”).



of which compete for customers with the facilities-based carriers.<sup>83</sup>

## **2. Newer Providers Are Intensifying Competition.**

In addition to the provider segments described above, the Commission's competitive analysis must also account for non-traditional and emerging suppliers of connectivity and competition. These offerings, both current and planned, enable consumers to mix and match services and applications that are both complements and substitutes, driving still more competition.

*Over-the-top VoIP and messaging providers are exerting competitive pressure.* Mobile VoIP technologies create an opportunity for over-the-top voice services, allowing users to opt for a broadband-based voice or video call rather than to rely on mobile voice minutes and/or paying international tolls.<sup>84</sup> More than 50 million adult smartphone users in the U.S. now use a video

---

<sup>83</sup> See, e.g., Google Official Blog, *Say hi to Fi: A New Way to Say Hello* (Apr. 22, 2015), <http://googleblog.blogspot.com/2015/04/project-fi.html> (stating that Project Fi “aims to put you on the best network wherever you go”); Straight Talk Wireless, “Service Plans,” <https://www.straighttalk.com/wps/portal/home/shop/serviceplans> (describing tablet, hot spot, remote alert and car connection plans) (last visited June 29, 2015); PRNewswire, *ROK Mobile Unveils the Best Deal in Mobile and Streaming Music, Period!* (June 11, 2015), <http://www.prnewswire.com/news-releases/rok-mobile-unveils-the-best-deal-in-mobile-and-streaming-music-period-300097718.html> (describing no-contract, unlimited talk, text, data and streaming music plan offered at \$49.99 per month); Vodafone Global Enterprise, “Vodafone to introduce wireless services for its MNC customers in the U.S.,” (Dec. 11, 2014), [http://enterprise.vodafone.com/insight\\_news/2014-12-11-vodafone-to-introduce-wireless-services-for-its-mnc-customers-in-the-us.jsp](http://enterprise.vodafone.com/insight_news/2014-12-11-vodafone-to-introduce-wireless-services-for-its-mnc-customers-in-the-us.jsp) (explaining that Vodafone's re-entry into the U.S. market as an MVNO in the enterprise market will leverage its “global leadership in M2M capabilities”); Boost Mobile, “Boost Market,” <http://www.boostmobile.com/shop/boost-market/boost-tv/> (offering boostTV app with live sports for \$10 per month) (last visited June 29, 2015).

<sup>84</sup> See, e.g., *Grab an Extra Phone Line with magicApp*, MINNEAPOLIS STAR TRIBUNE (May 9, 2015), <http://www.startribune.com/grab-an-extra-phone-line-with-magicapp/303106831/>.

calling application such as FaceTime, Skype, or Google Hangouts.<sup>85</sup> Consumers have more options for over-the-top text-based communications and messaging apps like WhatsApp, Facebook Messenger, and Viber, and their use of those options has soared.<sup>86</sup> This phenomenon has led to dramatic shifts in the marketplace. For example, over the past year the total messaging volume of a single app, WhatsApp, was 50 percent larger than the messaging volume of the entire SMS market.<sup>87</sup> The proliferation of over-the-top calling and messaging services that are wedded to popular social media platforms has created a new dimension of wireless competition.

***Wi-Fi access is drawing new competitors.*** The total number of Wi-Fi hotspots in the United States is projected to increase from 9.8 million in 2013 to more than 32 million by the end of 2015.<sup>88</sup> Usage of Wi-Fi is also surging: in 2014, 46 percent of total world-wide mobile data traffic was offloaded onto fixed networks through Wi-Fi or small cells,<sup>89</sup> and this amount is expected to increase to 54 percent for mobile and 70 percent for tablets by 2019.<sup>90</sup> Cisco projects

---

<sup>85</sup> See Press Release, “Gartner Says More Than a Third of U.S. Adult Smartphone Users Use Their Smartphones for Video Calling,” (Nov. 24, 2014), <http://www.gartner.com/newsroom/id/2921317>.

<sup>86</sup> See, e.g., Bill Siwicki, *Should retailers prepare to go over the top?* INTERNET RETAILER (Mar. 19, 2015), <https://www.internetretailer.com/2015/03/19/mobile-messaging-apps-research-mtv-mgage>.

<sup>87</sup> See Benedict Evans, *WhatsApp sails past SMS, but where does messaging go next?* (Jan. 11, 2015), <http://ben-evans.com/benedictevans/2015/1/11/whatsapp-sails-past-sms-but-where-does-messaging-go-next>.

<sup>88</sup> iPass, *The Global Public Wi-Fi Network Grows to 50 Million Worldwide Wi-Fi Hotspots* (Jan. 20, 2015), <http://www.ipass.com/press-releases/the-global-public-wi-fi-network-grows-to-50-million-worldwide-wi-fi-hotspots/> (last visited June 29, 2015).

<sup>89</sup> Cisco, *Cisco Visual Networking Index: Global Mobile Data Traffic Forecast Update 2014-2019 White Paper*, at 4 (Feb. 3, 2015), [http://www.cisco.com/c/en/us/solutions/collateral/service-provider/visual-networking-index-vni/white\\_paper\\_c11-520862.pdf](http://www.cisco.com/c/en/us/solutions/collateral/service-provider/visual-networking-index-vni/white_paper_c11-520862.pdf).

<sup>90</sup> *Id.* at 22.

that the amount of global traffic offloaded from cellular networks on to Wi-Fi will exceed the amount of traffic that remains on cellular networks by next year.<sup>91</sup>

Cable operators are rapidly deploying Wi-Fi access points and networks throughout the country to keep their subscribers connected when they are not at home, and are introducing Wi-Fi-only mobile phone services. Cable providers are expected to have reached 20 million hotspots nationwide by the end of 2015 and 50 million by the end of 2017.<sup>92</sup> One analyst believes cable operators could create an MVNO that could undercut wireless operators.<sup>93</sup> In February 2015, Cablevision introduced Freewheel, which uses Wi-Fi as the primary network and cellular networks only to fill the gaps. Other “Wi-Fi First” products are being offered by start-up providers like Republic Wireless and FreedomPop.<sup>94</sup>

This demand for Wi-Fi access is attracting new competitors. For example, Google’s Project Fi offers customers a smartphone that largely runs on Wi-Fi.<sup>95</sup> Customers will have unlimited access to voice, text, and Wi-Fi services and will be able to purchase mobile data (using a combination of Sprint and T-Mobile networks) when outside Wi-Fi coverage. Some

---

<sup>91</sup> *Id.* at 3.

<sup>92</sup> *See U.S. cable operators closing in on 10M hotspots.*

<sup>93</sup> *See* Tiernan Ray, *Comcast et al.: Could be Profitable Wireless MVNOs, Says Nomura*, TECH TRADER DAILY (Mar. 31, 2015), <http://blogs.barrons.com/techtraderdaily/2015/03/31/comcast-et-al-could-be-profitable-wireless-mvnos-says-nomura/>.

<sup>94</sup> *See* Transcript, Q4 2014 Cablevision Systems Corp Earnings Call, at 3-4 (Feb. 25, 2015) (“Freewheel is the first all Wi-Fi device from a cable provider. It is available nationwide and delivers unlimited data, talk and text. It works anywhere in the world where you are connected to Wi-Fi.”) (J. Dolan); Ryan Knutson et al., *Google, Cablevision Challenge Wireless Industry’s Business Model*, WALL STREET JOURNAL (Jan. 26, 2015), <http://www.wsj.com/articles/google-cablevision-challenge-wireless-industrys-business-model-1422248642?autologin=y>.

<sup>95</sup> *See Price Comparison: Google’s Project Fi versus Verizon, AT&T, Sprint and T-Mobile.*

analysts expect that Google’s entry will likely “increase competition and make it even more difficult to drive improvement in profitability for the wireless carriers.”<sup>96</sup>

### **C. The U.S. Market Leads the World in LTE Investment.**

U.S. wireless providers continue to be the world leaders with respect to capital investment in networks and services. In 2014, U.S. providers invested more than \$32 billion in their networks, and cumulatively have invested over \$430 billion since 1985.<sup>97</sup> As a result of this investment, 98.5 percent of the U.S. population has access to LTE<sup>98</sup> – compared to 63 percent in Europe<sup>99</sup> – and 93.4 percent of the U.S. population has access to three or more mobile broadband providers.<sup>100</sup> The North American region has by far the highest percentage of LTE mobile subscriptions of any region in the world: 44 percent of North American mobile subscriptions are LTE, nearly triple the rate of the second-leading region (Western Europe) and nearly four times that of the third (Asia Pacific).<sup>101</sup>

---

<sup>96</sup> Tiernan Ray, *Google MVNO Will Bring Down Prices, Even if Not Slam Dunk, Says Pac Crest*, TECH TRADER DAILY (Jan. 27, 2015), <http://blogs.barrons.com/techtraderdaily/2015/01/27/google-mvno-will-bring-down-prices-even-if-not-slam-dunk-says-pac-crest/>.

<sup>97</sup> CTIA 2014 SURVEY RESULTS at 11.

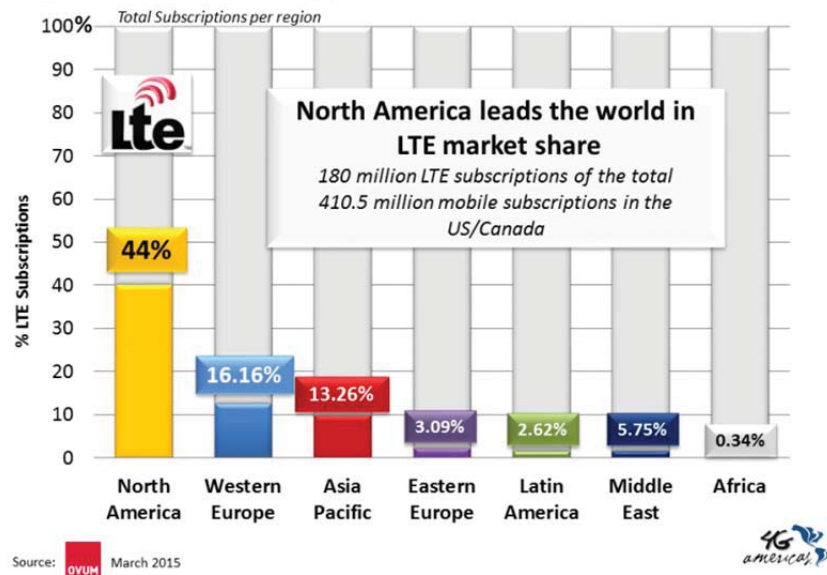
<sup>98</sup> *Seventeenth Report*, 29 FCC Rcd at 15340-41 ¶ 59 & tbl. III.A.2.

<sup>99</sup> GSMA, THE MOBILE ECONOMY 2015, at 12, [http://www.gsmamobileeconomy.com/GSMA\\_Global\\_Mobile\\_Economy\\_Report\\_2015.pdf](http://www.gsmamobileeconomy.com/GSMA_Global_Mobile_Economy_Report_2015.pdf) (“GSMA MOBILE ECONOMY 2015”).

<sup>100</sup> *Seventeenth Report*, 29 FCC Rcd at 15336 cht. III.A.2.

<sup>101</sup> 4G AMERICAS STATISTICS.

## Regional LTE Technology - Share of Market March 2015



LTE subscribership continues to skyrocket – the U.S. and Canada together saw 66 million new LTE subscriptions in the past year.<sup>102</sup> And 90 percent of North American subscriptions are projected to be LTE by 2020 – on pace to remain far ahead of the rest of the world.<sup>103</sup> As of the first quarter of 2015, North America accounted for 28 percent of global LTE connections,<sup>104</sup> despite having just 5 percent of the world’s mobile subscribers.<sup>105</sup>

<sup>102</sup> 4G Americas, *LTE: 1Q 2015 Americas*, <http://www.4gamericas.org/en/resources/infographics/lte-1q-2015-americas/> (reporting LTE subscribership in the U.S. and Canada to be 113.7 million in 1Q 2014 and 179.7 million in Q1 2015).

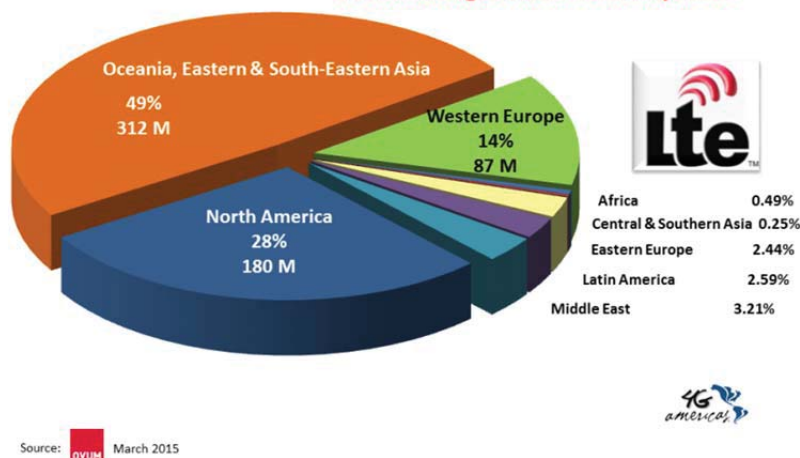
<sup>103</sup> See ERICSSON MOBILITY REPORT 9.

<sup>104</sup> 4G AMERICAS STATISTICS.

<sup>105</sup> This calculation is based on an estimated 355 million U.S. wireless connections, see CTIA 2014 SURVEY RESULTS at 2-3, and an estimated 7 billion global wireless connections. See, e.g., Plunkett Research, Ltd., WIRELESS & CELLULAR BUSINESS TRENDS ANALYSIS (Nov. 11, 2014), <http://www.plunkettresearch.com/trends-analysis/wireless-cellular-smart-phone-business-market/> (stating that there were approximately 7 billion global wireless communications subscriptions by mid-2014).

### 1Q 2015 LTE Subscribers and Market Shares by World Region

635 million global LTE subscriptions



U.S. consumers experience faster connection speeds as a result of U.S. carriers' larger investments in networks. In 2014, the average mobile data connection speed for the United States was 2.6 Mbps, ahead of most of the rest of the world and higher than the global average of 1.68 Mbps.<sup>106</sup> By the end of 2014, North America had a smartphone adoption rate of 70 percent, compared to 51 percent in Europe.<sup>107</sup> North American investment has also produced a sizeable head start in the deployment and use of other services that depend on 4G technology, such as the Internet of Things.<sup>108</sup>

U.S. consumers stand to benefit even more through the development and deployment of

<sup>106</sup> VNI MOBILE FORECAST HIGHLIGHTS (showing "Accelerating Network Speeds" of 2 Mbps for both Western Europe and the Asia Pacific regions, and lower in all other regions).

<sup>107</sup> GSMA MOBILE ECONOMY 2015, at 13.

<sup>108</sup> *Id.*, at 52 ("In the automotive sector, operators in both North America and one or two other markets (including for example Australia) are now deploying 4G-LTE devices, whilst most other regions are still working with 2G/3G. In-vehicle technology is an increasingly important differentiator in North America with a range of new services on offer.").

the next generation of LTE technology, LTE Unlicensed (“LTE-U”). LTE-U is a spectrally-efficient technology that minimizes the amount of spectrum needed to meet a given level of consumer demand for bandwidth. It frees up more spectrum for all consumers by reducing overall congestion in the unlicensed bands while coexisting with Wi-Fi operations.<sup>109</sup> Building on the United States’ considerable head start over most of the rest of the world with LTE – an advantage made possible by the Commission’s policy of technological neutrality – U.S. providers are now poised to lead the way again with LTE-U.

**D. The Competitive Marketplace Is Driving Rising Consumer Satisfaction.**

As carriers fight to win and retain customers in a vigorously competitive mobile ecosystem, overall wireless consumer satisfaction levels continue to be high. With the low barriers to customer switching described below, providers must compete vigorously to retain customers’ ongoing business. Moreover, regular surveys of wireless consumer opinion and the low level of customer complaints to the FCC show that wireless competitors are succeeding in their efforts to meet customers’ needs and expectations.

**1. Surveys Consistently Report High Numbers of Satisfied Customers.**

The wireless industry continues to enjoy high levels of customer satisfaction. A McLaughlin & Associates and Penn Schoen Berland 2014 survey found that 94 percent of wireless phone customers are satisfied with their wireless phone service and that the majority (58

---

<sup>109</sup> See, e.g., Verizon Comments, *Office of Engineering and Technology and Wireless Telecommunications Bureau Seek Information on Current Trends in LTE-U and LAA Technology*. ET Docket No. 15-105, at 6 (June 11, 2015).



percent) is “very” satisfied – both increases over the prior year.<sup>110</sup> According to the survey, “[t]he overwhelming level of satisfaction is evident among all consumer demographics,” and only 6 percent are dissatisfied with their wireless phone service.<sup>111</sup>

In addition, Consumer Reports’ most recent rankings report that seven out of eight cell phone carriers scored between 66 and 91 in connection with their traditional post-paid services, reflecting that consumers were either “fairly well satisfied” or “very satisfied;” and nine out of nine prepaid providers scored between 67 and 88 in connection with their services, reflecting the same levels of satisfaction.<sup>112</sup> Similarly, the American Customer Satisfaction Index (“ACSI”) has found that wireless consumer satisfaction has increased substantially since 2004 and has remained high for the last few years.<sup>113</sup> The most recent ACSI report observed that customers “prefer wireless providers to cable companies and ISPs,”<sup>114</sup> and that “[n]early half of homes now forgo fixed-line service in favor of wireless.”<sup>115</sup> The ACSI report further noted that

---

<sup>110</sup> See 2014 National Consumer Survey.

<sup>111</sup> *Id.*

<sup>112</sup> Consumer Reports, *U.S. cell phone carriers*, <http://www.consumerreports.org/cro/electronics-computers/phones-mobile-devices/cell-phones-services/us-cell-phone-carriers-ratings/ratings-overview.htm> (last visited June 11, 2015).

<sup>113</sup> American Customer Satisfaction Index, *Benchmarks by Industry—Wireless Telephone Service*, [http://theacsi.org/index.php?option=com\\_content&view=article&id=147&catid=&Itemid=212&i=Wireless+Telephone+Service](http://theacsi.org/index.php?option=com_content&view=article&id=147&catid=&Itemid=212&i=Wireless+Telephone+Service) (reflecting overall satisfaction with wireless telephone service up from a score of 65 in 2004 to 70 in 2015, with scores as high as 72 in three out of the prior five years) (last visited June 29, 2015).

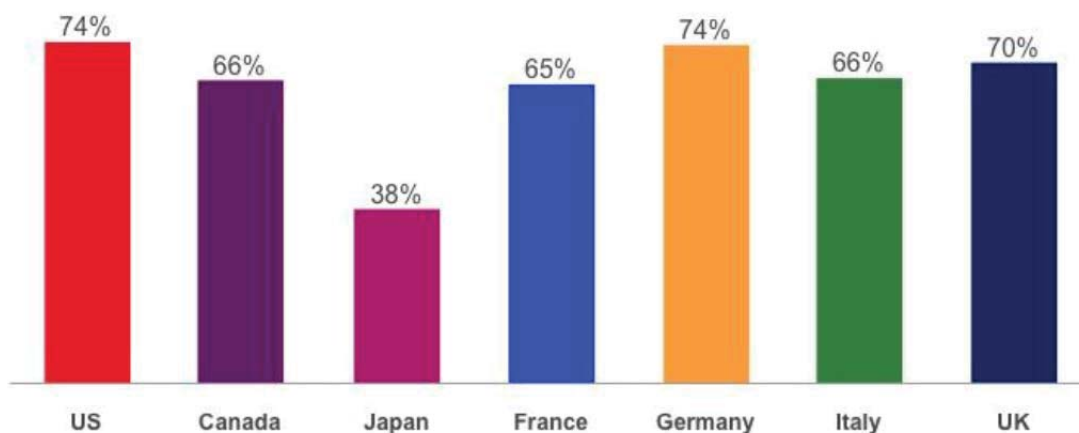
<sup>114</sup> American Customer Satisfaction Index, ACSI TELECOMMUNICATIONS AND INFORMATION REPORT 2015, at 8 (June 2, 2015), <http://www.theacsi.org/news-and-resources/customer-satisfaction-reports/reports-2015/acsi-telecommunications-and-information-report-2015> (last visited June 29, 2015).

<sup>115</sup> *Id.* at 6.



“[s]martphone customer satisfaction is high and consistent with the growth of the industry.”<sup>116</sup>

Customer satisfaction among U.S. smartphone users ranks high globally as well.<sup>117</sup> In one survey, 74 percent of U.S. smartphone customers reported high satisfaction (8, 9, or 10 on a 10 point scale) – a level of satisfaction matched by only one other G7 country:<sup>118</sup>



Source: comScore MobiLens, Quarterly data represented by 3-month average (with the exception of Canada – last month of quarter)

## **2. Consumer Complaints Are Minimal.**

Based on a review of the Commission’s reports on informal complaints, wireless complaints are extremely low in relation to the total number of wireless subscribers. According to the Commission’s new online Consumer Help Center, 34,848 complaints were filed in

---

<sup>116</sup> *Id.* at 10.

<sup>117</sup> See *infra* Section II.C (discussing continued high levels of U.S. wireless customer satisfaction).

<sup>118</sup> Roger Entner, SPECTRUM FUELS SPEED AND PROSPERITY 32-33 (Sept. 2014) (citing comScore MobiLens data), <http://reconanalytics.com/wp-content/uploads/2014/09/Spectrum-Fuels-Speed-and-Prosperity.pdf>.

connection with wireless voice service between December 29, 2014 and June 7, 2015<sup>119</sup> – representing one complaint for every 10,187 wireless subscribers.<sup>120</sup> Similarly, based on the Commission’s quarterly reports for 2014, a total of 75,623 complaints were filed between January 1 and October 31, 2014, when testing began for the Consumer Help Center (and when the Commission’s records ceased separately categorizing “wireless” complaints<sup>121</sup>) – again representing a tiny fraction of the nation’s wireless subscribers.<sup>122</sup> Moreover, the overwhelming majority of the complaints filed in 2014 were Telecommunications Consumer Protection Act (“TCPA”) complaints relating to telemarketers or spam, not complaints about carrier services or practices.

### **3. There are No Barriers To Prevent Customers from Switching.**

Notwithstanding surveys showing strong customer satisfaction, wireless subscribers who wish to switch providers can do so easily in today’s market. The *Seventeenth Report* found that

---

<sup>119</sup> FCC, *Consumer Help Center: Consumer Complaint by Service Type*, <https://consumercomplaints.fcc.gov/hc/en-us/articles/204646900> (detailing complaint-filing activity from the Consumer Help Center’s launch on December 29, 2014 through June 7, 2015) (last visited June 29, 2015).

<sup>120</sup> The number of subscribers at the end of 2014 was based on survey results from CTIA’s annual year-end 2014 top-line survey results. See CTIA 2014 SURVEY RESULTS at 2-3 (estimating the number of wireless connections to be about 355.4 million as of year-end 2014).

<sup>121</sup> In contrast to previous complaint reports, the Consumer Help Center does not break down wireless complaints by category, focusing instead on “Phone Complaints” and “Telephone Consumer Protection Act Complaints” without specifying the proportion of these complaints that relate to wireless service. FCC, *Consumer Help Center— Consumer Complaints by Category in Depth*, <https://consumercomplaints.fcc.gov/hc/en-us/articles/204537720-Consumer-Complaints-by-Category-in-Depth-> (last visited June 29, 2015).

<sup>122</sup> FCC, *Quarterly Reports—Consumer Inquiries and Complaints*, <https://www.fcc.gov/encyclopedia/quarterly-reports-consumer-inquiries-and-complaints> (last visited June 29, 2015).

switching barriers have “eased” and switching costs have been “reduced.”<sup>123</sup> During the last two years carriers have offered customers even more financial and other inducements to switch, further reducing—if not eliminating entirely—any remaining barriers.

First, as discussed above the wireless industry offers consumers many choices for services and plans, including prepaid service options, month-to-month postpaid contracts without an ETF, and postpaid term contracts. Contracts with ETFs give customers the ability to obtain wireless devices at substantial discounts from their full retail price, and typically provide that the ETF is prorated over the term of the contract. There are also multiple alternatives for customers who wish to avoid ETFs, including prepaid plans and month-to-month postpaid plans.<sup>124</sup>

Second, carriers are competing with incentive programs that reduce the costs associated with switching. The *Seventeenth Report* detailed two of the most “widely used” of these programs – ETF buyouts and tablet promotions and subsidies<sup>125</sup> – and found that these offers are lowering switching costs. Those offers are proliferating. For example, T-Mobile offers to buy customers out of their service contracts with other carriers, for up to \$650 per line or per contract.<sup>126</sup> Sprint likewise offers to reimburse “all of the costs to switch, including early termination fees and remaining payments on phone installment plans – no matter what is

---

<sup>123</sup> *Seventeenth Report*, 29 FCC Rcd at 15347 ¶ 69; *see also id.* at 15382 ¶ 145 (stating that ETF buyouts “reduc[e] switching costs”).

<sup>124</sup> CTIA, PREPAID WIRELESS SERVICE IN THE UNITED STATES: YEAR-END 2014 RESULTS 7 (June 2015) (stating that there were more than 76 million reported prepaid and pay-as-you-go subscriptions at year-end 2014, equal to 21.4 percent of all estimated wireless connections).

<sup>125</sup> *Seventeenth Report*, 29 FCC Rcd at 15382-84 ¶¶ 144-46 & Chart V-4.

<sup>126</sup> T-Mobile, “Only T-Mobile breaks the rules to set you free,” [http://www.t-mobile.com/landing/whyt-mobile.html?icid=WMD\\_TM\\_Q115CRRRFR\\_099WPV7BH81762](http://www.t-mobile.com/landing/whyt-mobile.html?icid=WMD_TM_Q115CRRRFR_099WPV7BH81762) (last visited June 29, 2015).

owed.”<sup>127</sup> Meanwhile, Verizon has a trade-in program that allows subscribers of other carriers to trade in their phones to switch to Verizon, in exchange for which the subscriber receives value that can reduce, or even fully offset, the ETF assessed by the other carrier.<sup>128</sup> Verizon also offers customers a discount off the price of tablets with a two-year contract.<sup>129</sup>

Third, the local number portability regime demonstrably supports customers’ ability to easily migrate from one carrier to another. The wireless-to-wireless porting process is very user-friendly, as the industry has implemented streamlined procedures to complete the vast majority of ports within a matter of hours. According to the most recent data available, wireless customers have ported almost 87 million telephone numbers to new wireless carriers.<sup>130</sup>

Fourth, customers’ ability to switch carriers became even easier last year when CTIA added a section on device unlocking to its Consumer Code for Wireless Service.<sup>131</sup> Under the Consumer Code, wireless carriers must unlock wireless devices—or provide the necessary information to unlock devices—for their customers and former customers in good standing after the fulfillment of the applicable postpaid service contract, device financing plan, or payment of

---

<sup>127</sup> Sprint Newsroom, “Sprint Will Reimburse All Your Costs to Switch – Join Sprint’s 56 Million Customers Today,” Mar. 13, 2015, <http://newsroom.sprint.com/news-releases/sprint-will-reimburse-all-your-costs-to-switch-join-sprints-56-million-customers-today.htm>.

<sup>128</sup> Verizon, “Device Recycling Program: Trade In to Trade Up,” <http://www.verizonwireless.com/mobile-living/network-and-plans/verizon-trade-in-program/> (last visited June 29, 2015).

<sup>129</sup> Verizon, “Cell Phone, Tablet & Accessory Deals,” <http://www.verizonwireless.com/deals-landing/>.

<sup>130</sup> See Craig Stroup & John Vu, Industry Analysis and Technology Division, FCC, *Numbering Resource Utilization in the United States*, at 1 (April 2013), [http://transition.fcc.gov/Daily\\_Releases/Daily\\_Business/2013/db0405/DOC-319997A1.pdf](http://transition.fcc.gov/Daily_Releases/Daily_Business/2013/db0405/DOC-319997A1.pdf) (porting data as of Sept. 30, 2010).

<sup>131</sup> See CTIA Consumer Code for Wireless Service.

applicable early termination fee. While there may be other reasons a wireless device will not work on another carrier's network, wireless providers can no longer prohibit customers from attempting to take their device with them to another carrier.

The cumulative effect of these pro-competitive developments is that customers can move to other carriers easily to pursue a rate plan, services or devices that better meet their needs.

### **III. THERE IS VIGOROUS COMPETITION FOR SPECTRUM IN BOTH THE PRIMARY AND SECONDARY SPECTRUM MARKETS.**

While spectrum is an essential input to the success of the wireless industry, it is held by a wide variety of competitors. Data show that companies are acquiring the spectrum they need to expand and optimize their network capacity. The Commission has supplied more licensed spectrum to the market and auctioned it to multiple buyers, and carriers are regularly purchasing, selling and swapping licenses on the secondary market. And competitors are using unlicensed spectrum to offer a wide range of new products. While the industry has continued to deploy spectrally efficient technologies and infrastructure to gain greater capacity with existing resources, with demand for mobile data continuing to skyrocket, policymakers must bring more spectrum to market and make it available to all providers.

#### **A. FCC Auctions Have Benefited All Competitors.**

In the last 16 months the Commission has auctioned 80 MHz of spectrum to numerous applicants. Earlier this year, the Commission concluded the AWS-3 auction of 65 MHz, the most substantial amount of spectrum auctioned since 2008, and last year it conducted the H Block auction of another 15 MHz. In total, 32 entities won licenses in those auctions, with most licenses going to non-nationwide carriers. These auctions, like previous ones, show not only that there is intense competition for "new" spectrum, but that it is being acquired by a wide range of companies, not just the national carriers. The two recent auctions confirm the pattern of previous

auctions: In the nine preceding auctions between 2003 and 2013, non-nationwide operators and small businesses won 46 percent of the aggregate MHz/POPs.<sup>132</sup> Together, then, these auctions and others have put substantial new spectrum holdings in the hands of new entrants and small providers.

DISH, rather than one of the national carriers, has been by far the most active player in the mobile spectrum holdings market during the past two years. Since the National Broadband Plan in 2010, the Commission has repurposed or auctioned 135 MHz of licensed spectrum – and DISH and the designated entities in which it invested have *acquired more than half (75 MHz)*.<sup>133</sup> In contrast, Verizon acquired just 12 MHz of that spectrum (in the AWS-3 auction), less than 10 percent.

---

<sup>132</sup> See Mobile Future, FCC SPECTRUM AUCTIONS AND SECONDARY MARKETS POLICIES: AN ASSESSMENT OF THE DISTRIBUTION OF SPECTRUM RESOURCES UNDER THE SPECTRUM SCREEN 17 (Nov. 2013), <http://mobilefuture.org/resources/fcc-spectrum-auctions-and-secondary-markets-policies-an-assessment-of-the-distribution-of-spectrum-resources-under-the-spectrum-screen/>.

<sup>133</sup> Since the National Broadband Plan, the FCC has repurposed WCS (20 MHz) and AWS-4 (40 MHz) and auctioned H Block (10 MHz) and AWS-3 (65 MHz), for a total of 135 MHz of licensed spectrum. DISH and its designated entities have interests in 75 MHz – DISH has 40 MHz of AWS-4 and 10 MHz of H Block, and the designated entities in which it invested have 25 MHz of nationwide MHz depth in AWS-3. See Goldman Sachs, WHO HAS THE BEST SPECTRUM POSITION AND WHAT IS IT WORTH? 24, Exh. 16 (Mar. 5, 2015).

Spectrum is dispersed among a wide variety of companies, with five companies having nationwide or near-nationwide holdings:

Source: Wells Fargo, Wireless Spectrum Primer (Mar. 25, 2015).

One analyst report recently found that:

- DISH “now holds more spectrum than T-Mobile, nearly as much primary LTE spectrum as AT&T and nearly as much downlink spectrum as Verizon. It also appears to hold a portfolio that is optimized for mobile video because of its high downlink-to-uplink ratio and wide, contiguous channels.”<sup>134</sup>
- T-Mobile has “25-35% more primary LTE spectrum *per customer* than AT&T and Verizon,” “compares favorably against AT&T and Verizon in terms of its ability to support wide-channel LTE downlink signals,” and “has ample capacity to support sustained share gains.”<sup>135</sup>

---

<sup>134</sup> *Id.* at 3.

<sup>135</sup> *Id.* at 12, 1 (emphasis in original).

- Sprint “holds 45-175% more spectrum than any other licensee.... Sprint holds so much spectrum in the EBS/BRS band that it can provide up to six channels of 20 MHz LTE downlink to 67% of the population. This should enable Sprint to sustain high speeds, even as usage grows, by layering additional 20 MHz channels into its LTE network.”<sup>136</sup>

Each of these entities has large holdings of mid-band spectrum, and the report’s findings reflect the growing importance of such mid-band, “capacity” spectrum. Mid-band spectrum, with wider channels, enables higher speeds and more throughput as mobile providers respond to the ever-growing demand for more mobile data traffic. And with more limited propagation, mid-band spectrum can be deployed to densify networks in high traffic areas more easily than low-band spectrum. As one commenter recently noted, “mid- and high-band spectrum, because they enable greater *capacity*, are more valuable than commonly assumed.”<sup>137</sup>

Particularly striking is the fact that of the five firms with nationwide or near nationwide spectrum holdings, the two with the largest market shares have the smallest amount of spectrum available to serve those customers on a MHz per customer basis. Sprint has more than triple the amount of spectrum to serve its customers than do AT&T and Verizon. DISH, of course, has no

---

<sup>136</sup> *Id.* 13, 14.

<sup>137</sup> Bret Swanson, *The IoT needs more wireless spectrum, and the FCC is perverting the process of allocating spectrum via auction*, COMPUTERWORLD (June 4, 2015), <http://www.aei.org/publication/the-iot-needs-more-wireless-spectrum/> (emphasis in original).



customers at all. The data show that spectrum as an input to the competitive wireless market is not constraining smaller providers; to the contrary the largest providers are the most spectrum-constrained:

Sources: Carriers' Q1 2015 Financial Statements; Wells Fargo, Wireless Spectrum Primer (Mar. 25, 2015).

\*\* Infinite spectrum per customer

**B. An Active Secondary Market Is Enabling Carriers To Obtain Spectrum.**

There is also an active and successful secondary spectrum market. Transactions data show that carriers of all sizes are frequently purchasing, selling, and/or trading spectrum licenses in order to secure the spectrum they need to optimize their holdings and build the networks they think will be most competitively successful. According to data compiled from the Commission's Universal Licensing System ("ULS"), the FCC has acted on more than 3,200 non-*pro forma* license assignment/transfer applications involving CMRS services between June 2005 and June

2015.<sup>138</sup> A review of those transactions since June 2013 reflects a fluid market in which large and small providers are acquiring spectrum: non-nationwide entities acquired spectrum in 36 percent of the non-*pro forma* license assignment/transfer applications; Verizon and T-Mobile each acquired licenses in 11 percent of those transactions; Sprint acquired licenses in 16 percent; and AT&T acquired licenses in 24 percent.<sup>139</sup>

**C. Unlicensed Spectrum Helps Meet Consumers' Increasing Demand for Data and Drives Additional Competition.**

To meet the growing demand for mobile traffic, competitors are also looking beyond traditionally licensed spectrum. As CTIA—The Wireless Association® President and CEO Meredith Attwell Baker recently noted, “We also support shared spectrum, and we support unlicensed spectrum.... The right spectrum strategy is an all-of-the-above strategy.”<sup>140</sup> Millions of consumers enjoy the benefits of Wi-Fi in their smartphones, tablets, and mobile hotspots, and carriers in turn rely on Wi-Fi to offload traffic from their mobile networks. Today, unlicensed

---

<sup>138</sup> Derived from data in the FCC’s ULS “Assignments and Transfers” database as of June 15, 2015, <http://wireless.fcc.gov/uls/index.htm?job=transaction&page=weekly>. These totals reflect all non-*pro forma* transfer of control and assignment of license applications involving CMRS licenses to which the FCC granted its consent during the relevant time period. Searches were limited to those CMRS services that the FCC presently includes in its spectrum screen (*i.e.*, 700 MHz band, AWS-1, ASW-4, Broadband PCS, BRS, Cellular, H Block, SMR and WCS) excluding EBS (EBS licenses are not freely transferable due to eligibility restrictions, and are not included in the total). See *Policies Regarding Mobile Spectrum Holdings*, Report and Order, 29 FCC Rcd 6133 (2014) (“*Mobile Spectrum Report and Order*”).

<sup>139</sup> Derived from data in the FCC’s ULS “Assignments and Transfers” database as of June 15, 2015, <http://wireless.fcc.gov/uls/index.htm?job=transaction&page=weekly>. These totals reflect all non-*pro forma* transfer of control and assignment of license applications to which the FCC granted its consent involving licenses in the following radio services: 700 MHz band, AWS-1, ASW-4, Broadband PCS, BRS, Cellular, H Block, SMR and WCS.

<sup>140</sup> Meredith Attwell Baker, President & CEO, CTIA—The Wireless Association, Prepared Remarks, ISART 2015, at 4, <http://www.ctia.org/docs/default-source/default-document-library/isart-speech-public.pdf> (May 14, 2005).

spectrum carries approximately 60%-70% of smartphone and tablet traffic.<sup>141</sup> And, as detailed above, in pursuit of an improved customer experience, some carriers are looking to launch LTE-Unlicensed. Many other service providers, including Google, Republic Wireless, FreedomPop, and Cablevision's Freewheel, are using unlicensed spectrum to offer new competitive products for wireless connectivity.<sup>142</sup>

The Commission has made significant amounts of spectrum available for unlicensed use. Nearly 1000 MHz of spectrum is allocated to unlicensed uses below 6 GHz,<sup>143</sup> of which more than 500 MHz in the 2.4 GHz and 5 GHz bands are used for broadband access,<sup>144</sup> currently via Wi-Fi. It also is expanding existing bands and allocating new bands for unlicensed, which will supply much more capacity to meet consumers' ever-growing demand for wireless-delivered data. For example, last year the Commission increased the maximum outdoor power levels of parts of the 5 GHz band, increasing that band's utility for services that can compete with carriers' networks,<sup>145</sup> and this year it allocated an additional 150 MHz for unlicensed use in the

---

<sup>141</sup> Wells Fargo, Wireless Spectrum Primer, at 3 (Mar. 25, 2015).

<sup>142</sup> See *supra* at Section II.B.2.

<sup>143</sup> Thomas W. Hazlett and Evan T. Leo, "The Case for Liberal Spectrum Licenses: A Technical and Economic Perspective," George Mason University Law and Economics Research Paper Series 10-19 (2010): 6, available at [http://www.law.gmu.edu/assets/files/publications/working\\_papers/1019CaseforLiberalSpectrumLicenses20100412](http://www.law.gmu.edu/assets/files/publications/working_papers/1019CaseforLiberalSpectrumLicenses20100412) at 7.

<sup>144</sup> J.P. Morgan, "Wi-Fi Mobile Primer: Expansion of Wi-Fi Is a Critical Input to Data Growth and Complement to Cellular" (Apr. 10, 2015) at 4.

<sup>145</sup> *Revision of Part 15 of the Commission's Rules to Permit Unlicensed National Information Infrastructure (U-NII) Devices in the 5 GHz Band*, ET Docket No. 13-49, *First Report and Order* (released April 1, 2014).

3.5 GHz band.<sup>146</sup>

But access to unlicensed spectrum is not just about wireless data offload; it also provides important competitive pressure to existing wireless providers. Unlike licensed spectrum, the spectrum available for unlicensed services is free of charge and easily accessible. And primary bands used for unlicensed broadband are globally harmonized, which drives down the cost of devices. In response to market and industry demand, the Institute of Electrical and Electronics Engineers (IEEE), which is responsible for the Wi-Fi standard, and various other industry groups, including the Wi-Fi Alliance (WFA) and the Wireless Broadband Alliance (WBA), have continued to add features that improve the quality of Wi-Fi network service, performance, and management.<sup>147</sup> These and other technological advances are enabling new competitive product and services. The substantial additional blocks of unlicensed spectrum the Commission is bringing to market will further drive innovation in products that capitalize on that spectrum, in turn driving even more competition among existing providers, device suppliers, and new entrants.

#### **D. More Spectrum Is Needed.**

Even with all of these opportunities for carriers to obtain the mix of spectrum they want to serve their customers, more licensed as well as unlicensed spectrum is badly needed. The National Broadband Plan found that “[t]he growth of wireless broadband will be constrained if

---

<sup>146</sup> *Amendment to the Commission’s Rules with Regard to Commercial Operations in the 3550-3650 MHz Band*, GN Docket No. 12-354, *Report and Order and Second Further Notice of Proposed Rulemaking* (released April 21, 2015).

<sup>147</sup> Mark Poletti, Cable Labs, “Carrier-Grade Wi-Fi Keeps Pace with Wi-Fi Network Growth: How CableLabs is Contributing” (2013 available at <http://www.cablelabs.com/carrier-grade-wi-fi-keeps-pace-with-wi-fi-network-growth-how-cablelabs-is-contributing/>)

government does not make spectrum available to enable network expansion and technology upgrades.”<sup>148</sup> Maximizing the amount of licensed spectrum made available in the upcoming 600 MHz incentive auction and continuing to identify spectrum that can be reallocated from federal to commercial use will help address the growing needs of wireless consumers.

#### **IV. THE NEXT COMPETITION REPORT SHOULD CORRECT THE FLAWS IN THE PREVIOUS REPORT.**

The *Seventeenth Report* makes five analytical and other errors which the Commission should fix in the *Eighteenth Report*. Specifically, the Report did not make the finding Congress directed it to make as to whether there was effective competition, relied on static measures of market structure, ignored MVNOs’ growth as a pro-competitive force, differentiated among spectrum frequencies, and relied on measures of profitability which do not accurately evaluate the level of competition in an industry.

##### **A. The *Seventeenth Report* Failed To Make the Requisite Effective Competition Finding.**

Although it cited thousands of facts revealing intense competition throughout the industry, the Commission declined to find that there was effective competition, repeating the same error it had made beginning with the *Fourteenth Report*. The Commission merely noted, “Given the complexity of the various inter-related segments and services within the mobile wireless ecosystem, we refrain from providing any single conclusion because such an assessment

---

<sup>148</sup> FCC, *Connecting America: The National Broadband Plan*, at 77 (2010), <http://download.broadband.gov/plan/national-broadband-plan.pdf>; see also Press Release, *Presidential Memorandum: Unleashing the Wireless Broadband Revolution* (June 28, 2010), <http://www.whitehouse.gov/the-press-office/presidential-memorandum-unleashing-wireless-broadband-revolution> (“America’s future competitiveness and global technology leadership depend, in part, upon the availability of additional spectrum.”).

would be incomplete and possibly misleading in light of the variations and complexities we observe.”<sup>149</sup> Yet faced with similarly complex facts, the Commission in each report issued from 2003 to 2008 had concluded that “the CMRS marketplace is effectively competitive.”<sup>150</sup> The failure to make such a finding was contrary to the statute and ignored extensive data.<sup>151</sup>

Finding effective wireless competition in the next annual report will also be consistent with the Commission’s conclusion earlier this month that the video marketplace *is* subject to “effective competition.” That order found that “[g]iven the state of the video marketplace today ... it is appropriate to presume the presence of Competing Provider Effective Competition on a nationwide basis.”<sup>152</sup> That order relied on data showing that nearly 35 percent of homes in the U.S. have access to at least four competing video providers, and approximately 99.7 percent have

---

<sup>149</sup> *Seventeenth Report*, 29 FCC Rcd at 15315 ¶ 6.

<sup>150</sup> *Implementation of Section 6002(b) of the Omnibus Reconciliation Act of 1993; Annual Report and Analysis of Competitive Market Conditions with Respect to Commercial Mobile Services*, Eighth Report, 18 FCC Rcd 14783, 14876 ¶ 217 (2003); Ninth Report, 19 FCC Rcd 20597, 20689 ¶ 225 (2004); Tenth Report, 20 FCC Rcd 15908, 15985 ¶ 207 (2005); Eleventh Report, 21 FCC Rcd 10947, 11031 ¶ 216 (2006); Twelfth Report, 23 FCC Rcd at 2354 ¶ 293; Thirteenth Report, 24 FCC Rcd at 6311 ¶ 277. The *Seventeenth Report* acknowledged that “This is in contrast to the *Eighth* through the *Thirteenth Reports*, which included a specific finding that there [i]s effective competition in the CMRS market.” *Seventeenth Report*, 29 FCC Rcd at 15315 n.12.

<sup>151</sup> 47 U.S.C. § 332(c)(1)(C) (“The Commission shall review competitive market conditions with respect to commercial mobile services and shall include in its annual report an analysis of those conditions. Such analysis *shall include ... an analysis of whether or not there is effective competition ....*”) (emphasis added).

<sup>152</sup> *Amendment to the Commission’s Rules Concerning Effective Competition*, Report and Order, MB Docket No. 15-53, FCC 15-62, ¶ 11 (rel. June 3, 2015) (citing *id.*, § II). According to the order, competing provider effective competition exists if the area is served by at least two unaffiliated multichannel video programming distributors that offer comparable programming to at least 50 percent of the households, and the number of households subscribing to the services of MVPDs other than the largest MVPD exceeds 15 percent. *See id.*, ¶ 6.

access to at least three competing video providers.<sup>153</sup> By contrast, the *Seventeenth Report* found that more than 91 percent of the population lives in areas with four or more mobile wireless providers, and approximately 97 percent have access to three or more mobile providers.<sup>154</sup> If a video market where only 35 percent of homes have access to four providers is effectively competitive, a mobile market in which 91 percent of the population has access to at least four providers is surely also effectively competitive.

**B. The *Seventeenth Report* Relied on Market Structure Rather than Market Behavior.**

The *Seventeenth Report* continued to rely on market concentration and HHI scores as an indicator of whether the mobile wireless market is competitive,<sup>155</sup> even though the Commission has recognized that market behavior is the better indicator. As the Commission explained in the *Sixteenth Report*, “market performance metrics provide more direct evidence of competitive outcomes and the strength of competitive rivalry than intermediate factors, such as concentration measures.”<sup>156</sup> Those performance metrics, as cited throughout the *Seventeenth Report*, tell a very clear story – one that reflects the competition, dynamism, and differentiation that is the mobile ecosystem. For example, the *Seventeenth Report* cited increasing output,<sup>157</sup> declining prices,<sup>158</sup> and increased capital investment.<sup>159</sup> The market performance data clearly warranted a finding of

---

<sup>153</sup> See *id.* ¶ 11 n.62 (citing *id.*, § II); *id.* ¶ 4.

<sup>154</sup> See *Seventeen Report*, 29 FCC Rcd at ¶ 48 & cht. II.A.1.

<sup>155</sup> See *id.*, 29 FCC Rcd at 15326-27 ¶¶ 31-33.

<sup>156</sup> *Sixteenth Report*, 28 FCC Rcd at 3732-33 ¶ 10.

<sup>157</sup> *Seventeenth Report*, 29 FCC Rcd at 15348-49 ¶ 73.

<sup>158</sup> *Id.* at 15330-31 ¶¶ 40-41 & 15426 tbl II.D.ii.

<sup>159</sup> *Id.* at 15394 ¶ 170.

effective competition.

By continuing to emphasize the impact of HHI measures on competition, the *Seventeenth Report* erroneously focused on the shares of mobile wireless connections held by facilities-based mobile wireless providers.<sup>160</sup> It is well established within antitrust literature that market shares alone do not paint a comprehensive portrait of competition within an industry. As the leading antitrust treatise concludes, even a high market share will not necessarily denote market power.<sup>161</sup> Two former FCC Chief Economists similarly have noted that “current product-market shares may indicate very little about the future of the industry or about whether any given firm will possess significant market power.”<sup>162</sup> The Federal Trade Commission and the Department of Justice likewise have reiterated the need to look beyond concentration. The revised Horizontal Merger Guidelines issued by these two entities state, “Market shares may not fully reflect the competitive significance of firms in the market” and thus, must only be consulted in conjunction

---

<sup>160</sup> The *Seventeenth Report* does not include a detailed explanation of its HHI methodology, but indicates that HHIs are calculated to maintain continuity with prior reports. *See Seventeenth Report*, 29 FCC Rcd at 15326-27 ¶ 32. In the *Sixteenth Report*, the Commission explained: “As in previous Reports, we calculate the HHI in each EA using the shares of mobile wireless connections held by facilities-based mobile wireless providers, deriving providers’ shares of connections from their respective number of connections. Hence, we use a facilities-based provider’s number of connected devices as a proxy for the provider’s actual output (*i.e.*, minutes of use, MBs, etc.).” *Sixteenth Report*, 28 FCC Rcd at 3755 ¶ 55.

<sup>161</sup> *See* PHILLIP E. AREEDA & HERBERT HOVENKAMP, ANTITRUST LAW: AN ANALYSIS OF ANTITRUST PRINCIPLES AND THEIR APPLICATION § 506d (Aspen Publishers 2007) (“*Antitrust Law*”) (“Substantial market power can persist only when there are significant and continuing barriers to expansion and entry.”); *see also id.* § 506a (“[T]he degree of market power depends on the response of buyers to price changes. Greater responsiveness (greater ‘elasticity’ of demand) minimizes market power.”).

<sup>162</sup> Michael L. Katz & Howard A. Shelanski, ‘Schumpeterian’ Competition and Antitrust Policy in High-Tech Markets, 14 COMPETITION 47, \*10 (2005).



with other evidence of the state of competition.<sup>163</sup> Nevertheless, the *Seventeenth Report* still inappropriately emphasized HHI figures and purported concentration.<sup>164</sup> It noted a “small increase” in average HHI from 2012 to 2013,<sup>165</sup> and emphasized the fact that recent HHI values have been above the “highly concentrated” threshold.<sup>166</sup>

The *Seventeenth Report*’s use of HHIs was also incorrect because its HHI calculus utilized only the market shares of facilities-based providers. As discussed above, however, MVNOs, over-the-top VoIP providers, and companies like Google and Cablevision that are offering Wi-Fi-first or Wi-Fi-only mobile phone service are all driving competition in the mobile space.<sup>167</sup> The *Eighteenth Report* should focus more on competitive *outcomes* in the market – namely, increasing output, declining prices, and massive ongoing investment – and less on measures of market concentration, particularly measures that examine only facilities-based carrier market shares to the exclusion of other companies that also compete for customers.

**C. The *Seventeenth Report* Did Not Acknowledge the Competitive Impact of MVNOs.**

The *Seventeenth Report*’s concentration analysis was also flawed by its failure to recognize MVNOs as distinct market participants in its competition assessment. The Commission has previously acknowledged that “[t]he strategic partnerships between MVNOs

---

<sup>163</sup> U.S. Department of Justice and Federal Trade Commission, HORIZONTAL MERGER GUIDELINES § 5.3 (issued Aug. 19, 2010), <http://www.justice.gov/atr/public/guidelines/hmg-2010.html> (“HORIZONTAL MERGER GUIDELINES”).

<sup>164</sup> *Seventeenth Report*, 28 FCC Rcd at 15327 ¶ 33.

<sup>165</sup> *Id.*

<sup>166</sup> *Id.* at 15327 cht. II.C.1

<sup>167</sup> See discussion *supra* Section II.B.2.

and facilities-based providers increase competition and consumer welfare by providing service to various market segments using the capacity of the hosting facilities-based provider and the marketing strategy and distribution network of the MVNO.”<sup>168</sup> Indeed, the *Seventeenth Report* admitted that by “using the networks of one or several facilities-based providers,” MVNOs “compete with the nationwide providers.”<sup>169</sup> Nevertheless the report “attributes the subscribers of MVNOs to their host facilities-based providers, including when it calculates market concentration metrics.”<sup>170</sup> The competitive impact of MVNOs cannot, however, be so easily dismissed.<sup>171</sup>

As explained above, MVNOs compete with facilities-based providers and each other along a host of vectors, differentiating themselves by assembling unique modules of content, applications, and devices that may not be available from their underlying providers. As the *Seventeenth Report* recognized, “MVNOs often increase the range of services offered by the host facilities-based provider by targeting specific market segments, including segments previously not served by the hosting facilities-based provider.”<sup>172</sup> And MVNOs have achieved great success in the market. Since 2003, the year after the mandatory resale rule sunset, MVNO subscribers

---

<sup>168</sup> *Sixteenth Report*, 28 FCC Rcd at 3741 ¶ 35.

<sup>169</sup> *Seventeenth Report*, 29 FCC Rcd at 15400 ¶ 181 (emphasis added).

<sup>170</sup> *Id.* at 15319 ¶ 16.

<sup>171</sup> See, e.g., Gerald R. Faulhaber, *et al.*, *Assessing Competition in U.S. Wireless Markets: Review of the FCC’s Competition Reports*, 64 FED. COMM. L.J. 319, 324 n.21 (2012) (“Given that MVNOs offer different service plans (for example, pre-paid), they arguably should be considered distinct providers.... Sears buys its appliances from General Electric and others, which Sears markets under the Kenmore name. To the extent that General Electric is competing with Kenmore/Sears, MVNOs are competing with facilities-based wireless carriers.”).

<sup>172</sup> *Seventeenth Report*, 29 FCC Rcd at 15318 ¶ 15.

have more than tripled, and MVNO customers now comprise 12 percent of all wireless subscribers.<sup>173</sup> At the end of 2014, MVNO provider TracFone Wireless – the fifth-largest provider in the U.S. – had approximately 26 million wireless subscribers,<sup>174</sup> which represented more than one-third (34.8 percent) of the overall pre-paid wireless market.<sup>175</sup> Given this success and robust market presence, it is not surprising that TracFone has reported to regulators that “[w]e compete with the major U.S. wireless operators and other MVNOs such as Sprint Corporation, T-Mobile International AG, Verizon Communications Inc. and AT&T.”<sup>176</sup> Such an unaffiliated entity must be considered relevant in a competitive analysis.

There is no sound basis for categorically dismissing the competitive threat posed by a market participant simply because it relies on a retail competitor for one wholesale input.<sup>177</sup> The Commission’s analysis should instead focus on “the extent to which customers view various

---

<sup>173</sup> Compare Industry Analysis and Technology Division, Wireline Competition Bureau, FCC, *Local Telephone Competition: Status as of December 31, 2003*, tbl.13 (June 2004), available at <https://www.fcc.gov/encyclopedia/local-telephone-competition-reports> (noting that as of December 2003, MVNO Resale Subscribers totaled about 9.4 million (6 percent of 157,042,082 total subscribers)) with Industry Analysis and Technology Division, Wireline Competition Bureau, FCC, *Local Telephone Competition: Status as of December 31, 2013*, tbl.18 (Oct. 2014), [https://apps.fcc.gov/edocs\\_public/attachmatch/DOC-329975A1.pdf](https://apps.fcc.gov/edocs_public/attachmatch/DOC-329975A1.pdf) (noting that as of December 2013, MVNO resale subscribers totaled about 31.1 million (12 percent of 310,698,000 total subscribers)).

<sup>174</sup> América Móvil, S.A.B. De C.V., SEC Form 20-F, at 40 (Apr. 30, 2015), [http://www.americamovil.com/amx/en/cm/filings/Form\\_2014.pdf](http://www.americamovil.com/amx/en/cm/filings/Form_2014.pdf). TracFone is owned by América Móvil, S.A.B. De C.V. *Id.* at 17, 40.

<sup>175</sup> *Id.* at 40.

<sup>176</sup> *Id.*

<sup>177</sup> See, e.g., *FTC v. Cardinal Health Inc.*, 12 F. Supp. 2d 34, 39-53 (D.D.C. 1998) (observing that all forms of distribution must, at some level, compete with each other and thus undertaking a careful evaluation of whether manufacturers, wholesalers, and retailers were in the same market for antitrust purposes based on whether customers can substitute among them easily).

services as substitutes.”<sup>178</sup> Customers may not know or care that their service is a resold offering available at retail from another provider, because they focus on instead on price, quality, and the family of devices, services, applications, and capabilities offered by the brand. The Commission should thus consider MVNOs as full participants in assessing competition for the *Eighteenth Report*.

**D. The *Seventeenth Report*’s Spectrum Analysis Is Flawed.**

The *Seventeenth Report*’s spectrum analysis continued to differentiate between mobile wireless spectrum bands below and above 1 GHz in its competitive analyses,<sup>179</sup> suggesting that holding sub-1 GHz spectrum is a greater necessity than holding higher band spectrum.<sup>180</sup> These distinctions are invalid. Every spectrum band that is suitable for mobile networks has both advantages and disadvantages, depending on the type of network the provider wants to deploy, the geographic areas it wants to cover, the network speeds it seeks to achieve, its other spectrum

---

<sup>178</sup> United States Department of Justice Ex Parte Submission, *Economic Issues in Broadband Competition; A National Broadband Plan for Our Future*, GN Docket No. 09-51, at 12 (Jan. 4, 2010).

<sup>179</sup> See *Seventeenth Report*, 29 FCC Rcd at 15355-56 ¶¶ 90-92, 15360 ¶ 100, 15364 ¶ 106 & cmt. IV.A.2.

<sup>180</sup> See, e.g., *id.* at 15356 n.180 (“[E]nsuring that multiple providers are able to access *a sufficient amount of low-band spectrum is a threshold requirement* for extending and improving service in both rural and urban areas.”) (emphasis added); *id.* at 15356 ¶ 92 (“[W]ithout access to low-band spectrum, service providers would have to rely on alternative, less cost-effective methods to increase rural and in-building coverage to serve additional customers, such as adding towers, splitting cells, or acquiring roaming rights on other networks.”) (emphasis added); see also *id.* at 15360 ¶ 100 (“[C]onsidering additional below-1-GHz spectrum concentration as an enhanced factor in the Commission’s review of secondary market transactions will help ensure that further concentration of such spectrum will not have adverse competitive effects either in particular local markets or on a broader regional or national level”) (citing *Mobile Spectrum Report and Order* at 6240 ¶¶ 287-88).

holdings, and the devices it offers to customers.<sup>181</sup> Higher band spectrum in particular has distinct capacity advantages – advantages that are especially important given rising demand for more spectrum capacity. There is thus no inherent comparative value between high- and low-band spectrum, because that value varies carrier to carrier and over time depending on the optimal mix of services and coverage the carrier wants to achieve.<sup>182</sup>

**E. The *Seventeenth Report* Incorrectly Used Profitability to Measure Competition.**

The *Seventeenth Report* also erred in relying on “profitability” to assess the competitiveness of the wireless market. While the Commission has previously acknowledged that “neither accounting nor economic profits are considered reliable estimators of market power,”<sup>183</sup> the *Seventeenth Report* nonetheless evaluated accounting profit.<sup>184</sup> As a former FCC Chief Economist explained, accounting profit is not relevant to questions of competitiveness: “It is well-recognized among economists that accounting measures of profitability are ill-suited for gauging competitive intensity. There are several well-known ways in which accounting profits diverge from economic profits. This divergence is a serious issue because economic profits are

---

<sup>181</sup> See, e.g., Reply Comments of Verizon Wireless, *Policies Regarding Mobile Spectrum Holdings*, WT Docket No. 12-269, at 19-29 (Jan. 7, 2013).

<sup>182</sup> See, e.g., Comments of Verizon Wireless, *Sprint Nextel and SoftBank Corp. Joint Applications for Consent to Transfer of Control of Licenses, Leases, and Authorizations; and Petition for Declaratory Ruling under Section 310(b)(4) of the Communications Act of 1934, as amended*, IB Docket No. 12-343, at 29-31 (Jan. 28, 2013).

<sup>183</sup> *Sixteenth Report*, 28 FCC Rcd at 3888 ¶ 284.

<sup>184</sup> See *Seventeenth Report*, 15331-32 ¶¶ 42-43.

the measure relevant to the assessment of market performance.”<sup>185</sup> Moreover, “[e]ven if it were possible to estimate economic profits accurately, the existence of positive economic profits does not indicate that competition is ineffective or that regulatory intervention is warranted.”<sup>186</sup> Empirical research confirms that accounting profit is not a reliable indicator of market power.<sup>187</sup> The *Eighteenth Report* should dispense with use of this metric.

---

<sup>185</sup> Michael L. Katz, MEASURING EFFECTIVE CMRS COMPETITION ¶ 5 (July 13, 2009), attached as Exh. A to Reply Comments of AT&T, *Wireless Telecommunications Bureau Seeks Comment On Commercial Mobile Radio Services Market Competition*, WT Docket No. 09-66 (July 13, 2009) (emphasis omitted).

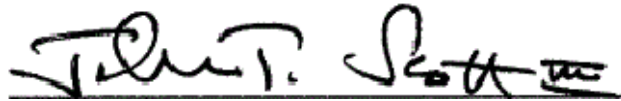
<sup>186</sup> *See id.*

<sup>187</sup> *See* William E. Kovacic, *Failed Expectations: The Troubled Past and Uncertain Future of the Sherman Act as a Tool for Deconcentration*, 74 IOWA L. REV. 1105, 1136-39 (1989) (discussing scholarship on issue); Almarin Phillips, *Market Concentration and Performance: A Survey of the Evidence*, 61 NOTRE DAME L. REV. 1099, 1102-03 (1986).

## CONCLUSION

An enormous volume of evidence demonstrates a hotly competitive, innovative mobile services market, in which consumers are paying less for more value and more services, and have ever more choices among products, services, and providers to meet their needs. The facts have never been more comprehensive and compelling in establishing that the wireless market is effectively competitive. It is time for the Commission to act consistent with Congress's direction, and reach that conclusion.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "John T. Scott III", written over a horizontal line.

John T. Scott, III  
Catherine M. Hilke

Kathleen Grillo  
*Of Counsel*

VERIZON  
1300 I Street, NW  
Suite 400 West  
Washington, DC 20005  
(202) 515-2412

*Attorneys for Verizon*

June 29, 2015